

EXD 1346

BULLETIN

DE LA

SOCIÉTÉ FOUAD I^{er} D'ENTOMOLOGIE

FONDÉE LE 1^{er} AOÛT 1907

anciennement:

Société Entomologique d'Egypte (1907-1922)
et *Société Royale Entomologique d'Egypte* (1923-1937)



Placée sous le Haut Patronage du Gouvernement Egyptien
par Décret Royal en date du 15 Mai 1923

Année 1945

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LE CAIRE
IMPRIMERIE PAUL BARBEY

1945

BULLETIN
DE LA
SOCIÉTÉ FOUAD I^{er} D'ENTOMOLOGIE

TRENTE-HUITIÈME ANNÉE
VINGT-NEUVIÈME VOLUME

1945



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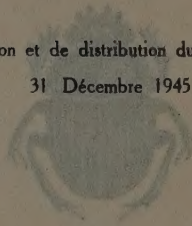
DE LA

SOCIÉTÉ FOUAD I^{er} D'ENTOMOLOGIE

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Date de parution et de distribution du présent Volume :

31 Décembre 1945



Le Rédacteur en Chef :

A. ALFIERI

Année 1945

LE CAIRE

IMPRIMERIE TALLI D'ARABY

1945

**DÉCRET DONNANT LE NOM DE
FOUAD PREMIER
A DES INSTITUTIONS PUBLIQUES CRÉÉES SOUS SES AUSPICES ⁽¹⁾**

Nous, FAROUK Ier, Roi d'Egypte,

Sur la proposition du Président de Notre Conseil des Ministres tendant à perpétuer le souvenir de feu le Roi Fouad Premier et à glorifier son nom, vu que son règne s'est distingué par des œuvres éminentes dans le domaine des réformes et par la création de maintes institutions publiques dont la réalisation s'est accomplie grâce à ses conseils et à sa sollicitude, ce qui a eu la plus grande influence sur l'orientation et le développement de la renaissance scientifique, littéraire, sociale et économique de l'Egypte ;

Sur l'avis conforme de Notre Conseil des Ministres ;

DECRETONS

Art. 1. — Le nom de Fouad Premier est donné aux institutions et établissements indiqués au tableau annexé au présent décret. ⁽²⁾

Art. 2. — Le Président de Notre Conseil des Ministres est chargé de l'exécution du présent décret, qui entrera en vigueur dès sa publication au « Journal Officiel ».

Fait au Palais de Montazah, le 11 Gamad Tani 1357 (7 Août 1938).

FAROUK

Par le Roi :

Le Président du Conseil des Ministres p.i.

ABDEL-FATTAH YEHIA

(Traduction)

⁽¹⁾ Extrait du *Journal Officiel* du Gouvernement Egyptien, N° 94, du Jeudi 11 Août 1938.

⁽²⁾ Parmi ces institutions et établissements, figure, sub 7: *Société Fouad Ier d'Entomologie au lieu de Société Royale Entomologique d'Egypte.*

**DÉCRET NOMMANT LE PRÉSIDENT
DE LA SOCIÉTÉ FOUAD I^{er} D'ENTOMOLOGIE ⁽¹⁾**

Nous, FAROUK I^{er}, Roi d'Egypte,

*Vu le Décret du 15 Mai 1923 approuvant les Statuts de la Société Royale
d'Entomologie d'Egypte (Société Fouad I^{er} d'Entomologie);*

*Sur la proposition du Président de Notre Conseil des Ministres et l'avis
conforme du dit Conseil;*

DECRETONS

*Art. 1. — Mahmoud Tewfik Hijnaoui Bey, Ministre de l'Agriculture,
est nommé Président de la Société Fouad I^{er} d'Entomologie.*

*Art. 2. — Le Président de Notre Conseil des Ministres est chargé de
l'exécution du présent décret.*

Fait au Palais d'Abdine, le 6 Moharram 1359 (14 Février 1940).

FAROUK

Par le Roi :

Le Président du Conseil des Ministres,

ALY MAHER

(Traduction)

⁽¹⁾ Extrait du *Journal Officiel du Gouvernement Egyptien*, 67^{ème} année, N° 18, du
Lundi 19 Février 1940.

**HAUTS PROTECTEURS
DE LA SOCIÉTÉ FOUAD I^{ER} D'ENTOMOLOGIE**

Le Très Regretté Roi FOUAD I^{ER}

et

Sa Majesté le Roi FAROUK I^{ER}

MEMBRES BIENFAITEURS

1924

M. MOUSTAPHA MOURAD EL-SALANEKLI Bey, de Damanhour (Béhéra).

1925

S.E. EL-SAYED FATHALLAH MAHMOUD Pacha, de Rahmania (Béhéra) ;
M. RIAD ABDEL-KAWI EL-GEHALI Bey, de Chebin-El-Kom (Menoufia) ; S.E.
GEORGES WISSA Pacha, d'Assiout (Haute-Egypte) ; M. YEHIA KAWALLI Bey,
de Minieh (Haute-Egypte) ; M. YACOB BIBAWI ATTIA Bey, de Minieh
(Haute-Egypte) ; S.E. HASSAN CHARAWI Pacha, de Minieh (Haute-Egypte) ;
S.E. HABIB CHENOUDA Pacha, d'Assiout (Haute-Egypte) ; M. MOHAMED
TEWFIK MOHANNA Bey, de Tewfikieh (Béhéra) ; M. HASSAN AHMED MOUSSA
Bey, de Minieh (Haute-Egypte) ; M. LABIB BARSOUM HANNA Bey, de Minieh
(Haute-Egypte) ; S.E. HASSAN MOHAMED EL-TAHTAWI Pacha, de Guirgheh
(Haute-Egypte) ; M. KASSEM OSMAN EL-LABBAN Bey, de Guirgheh (Haute-
Egypte) ; M. DORDEIR EL-SAYED AHMED EL-ANSARI Bey, de Guirgheh
(Haute-Egypte) ; M. BARSOUM SAID ABDEL-MESSIH Bey, de Minieh (Haute-
Egypte) ; M. DORDEIR TAHA ABOU-GOUNEMA Bey, de Minieh (Haute-Egypte).

1926

M. MOHAMED RIFAAT EL-ROZNAMGY Bey.

1927

M. le Dr. WALTER INNES Bey (décédé en 1937) ; M. le Dr. Avocat GIO-
VANNI FERRANTE, du Caire.

1928

M. le Professeur HASSAN C. EFFLATOUN Bey, du Caire ; M. HUGO
LINDEMAN (décédé en 1937).

1932

M. ALFRED REINHART (décédé en 1935).

ORGANISATION ADMINISTRATIVE POUR L'ANNÉE 1945

Membres du Conseil

S.E. le Prof. MAHMOUD TEWFIK HIFNAOUI Bey, *Président*.

M. le Prof. HASSAN C. EFFLATOUN Bey, *Vice-Président*.

M. MOHAMED SOLIMAN EL-ZOHEIRY, *Vice-Président*.

M. ANASTASE ALFIERI, *Secrétaire-Général*.

M. RICHARD WILKINSON, *Trésorier*.

M. le Dr. ASSAAD DAUD HANNA.

M. le Dr. MOHAMED SHAFIK Bey.

M. le Prof. Dr. KAMEL MANSOUR.

M. ABDEL-MEGID EL-MISTIKAWY.

M. le Prof. Dr. HAMED SELEEM SOLIMAN.

M. le Dr. SAADALLAH MOHAMED MADWAR.

M. EDGARD CHAKOUR.

Comité Scientifique

M. le Prof. HASSAN C. EFFLATOUN Bey, M. le Prof. Dr. KAMEL MANSOUR, M. le Dr. ASSAAD DAUD HANNA, M. le Prof. Dr. HAMED SELEEM SOLIMAN, M. le Dr. SAADALLAH MOHAMED MADWAR, M. MOHAMED SOLIMAN EL-ZOHEIRY, M. ANASTASE ALFIERI.

Censeurs

M. le Dr. A. AZADIAN et M. E. KAOURK.

LISTE DES MEMBRES

DE LA

SOCIÉTÉ FOUAD I^{er} D'ENTOMOLOGIE

EN 1945

(Les noms des Membres Fondateurs sont précédés de la lettre F)

Membres Honoraires

- | | |
|------|--|
| 1908 | ALLUAUD (Charles), Les Ouches à Crozant (Creuse), France. |
| 1924 | EBNER (Prof. Richard), 3, Beethovengasse, Vienne (IX), Allemagne. |
| 1909 | MARCHAL (Dr. Paul), 45, Rue de Verrières, Antony (Seine), France. |
| 1929 | PARENT (l'Abbé O.), Institut Calot, Berk-Plage, Pas-de-Calais, France. |
| » | PEYERIMHOFF DE FONTENELLE (P. de), 87, Boulevard Saint-Saëns, Alger, Algérie. |
| 1908 | PIC (Maurice), 3, Rue du Pont Neuf, Digoin (Saône-et-Loire), France. |
| 1940 | SILVESTRI (Prof. F.), Ecole Royale Supérieure d'Agriculture, Portici (Naples), Italie. |
| 1929 | THÉRY (André), Laboratoire d'Entomologie, Museum National d'Histoire Naturelle, 45 bis, Rue de Buffon, Paris (V°), France. |
| 1943 | UVAROV (Dr. B.P.), British Museum (Natural History), Londres, S.W. 7, Angleterre. |
| 1920 | VILLENEUVE (Dr. Joseph), Rue Président Paul Doumer, Rambouillet (Seine-et-Oise), France. |
| F | WILLCOCKS (F.C.), « Brambles », Hurst Lane, Sedlescombe (near Battle), Sussex, Angleterre. |

Membres Correspondants

- | | |
|------|---|
| 1932 | ALFKEN (J.D.), 18, Delmestrasse, Brême, Allemagne. |
| » | BALLARD (Edward), District Commissioner's Office, Jerusalem, Palestine. |
| 1924 | CROS (Dr. Auguste), 6, Rue Dublineau, Mascara, Algérie. |

- 1924 FLOWER (Major Stanley Smyth), Tring, Herts, Angleterre.
- 1934 GADEAU DE KERVILLE (Henri), 7, Rue du Passage-Dupont, Rouen (Seine-Inférieure), France.
- 1926 HALL (Dr. W.J.), c/o The Imperial Institute of Entomology, 41, Queen's Gate, London S.W.7, Angleterre.
- 1923 HERVÉ-BAZIN (Jacques), 44, Quai Béatrix, Laval (Mayenne), France.
- 1924 HINDLE (Prof. Dr. Edouard), Zoological Society of London, Regent's Park, London, N.W. 8, Angleterre.
- 1923 HUSTACHE (A.), Pensionnat Saint-Laurent, Lagny (Seine-et-Marne), France.
- 1925 KIRKPATRICK (Thomas Winfrid), East African Agricultural Research Station, Section of Entomology, Amani (via Tanga), Tanganyika Territory, British East Africa.
- 1934 KOCH (C.), c/o Monsieur Georges Frey, 18, Pienzenauerstrasse, Munich (27), Allemagne.
- 1929 MASI (L.), Museo Civico di Storia Naturale « Giacomo Doria », 9, Via Brigata Liguria, Genova (102), Italie.
- 1928 ORCHYMONT (A. d'), 176, Avenue Houba de Strooper, Bruxelles (II), Belgique.
- 1934 PAOLI (Prof. Guido), Directeur du Reale Osservatorio per le Malatie delle Piante, 1, Via Marcello Durazzo, Genova, Italie.
- » SCHATZMAYR (A.), Museo Civico di Storia Naturale, Corso Venezia, Milano, Italie.
- 1927 WILLIAMS (C.B.), Rothamsted Experimental Station, Harpenden, Herts, Angleterre.

Membres Titulaires

- 1913 ABAZA Pacha (S.E. Fouad), Directeur Général de la Société Royale d'Agriculture, Boîte Postale N° 63, au Caire.
- 1943 ABOUL-NASE (Ahmed Emad El-Din), Démonstrateur au Département d'Entomologie, Faculté des Sciences, Université Fouad I^{er}, Abbassia, au Caire.
- 1908 ALFIERI (Anastase), Secrétaire Général et Conservateur de la Société Fouad I^{er} d'Entomologie, Boîte Postale N° 430, au Caire.
- 1941 AMIN EL-DIB (Abdel-Latif), Faculté d'Agriculture, Université Farouk I^{er}, Damahour, Basse-Egypte.
- 1943 AMMAR (Mohamed Abdel-Guélil), Assistant Technique. Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.

- 1944 ATALLAH (Albert), Démonstrateur au Département d'Entomologie, Faculté des Sciences, Université Fouad I^{er}, 10, Sharia Masoud Baraka, Ard Raif, Choubrah, au Caire.
- 1938 ATTIA (Rizk), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1945 AZAB (Dr. Ahmed Kamel), Département d'Entomologie, Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- 1924 AZADIAN (Dr. A.), 11, Sharia El-Mahatta, Helmieh, près le Caire.
- 1938 BAILEY BROS AND SWINFEN LTD., 11, Ronalds Road, Highbury, London, N. 5, Angleterre.
- 1929 BICHARA (Ibrahim), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1938 BIANCHETEAU (Marcel), Aux Amateurs de Livres, 56, Faubourg Saint-Honoré, Paris (VIII^e).
- 1939 BLARINGHEM (Louis), de l'Institut de France, Conservateur de l'Arboretum G. Allard, 77, Rue des Saints-Pères, Paris (VI^e), France.
- 1923 BODENHEIMER (Prof. F.S.), Hebrew University, Jerusalem, Palestine.
- 1944 BROWN (T.W.), Sharia Talaat, Ghizeh, près le Caire.
- 1938 CARNERI (Alexandre), Librairie Elpénor, 10, Sharia Chakour Pacha, Alexandrie.
- 1929 CASSAB (Antoine), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1943 CHAARAWI (Ahmed Mounir), Assistant Technique, Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- F CHAKOUR (Edgard), Secrétaire Général de la Société Anonyme des Eaux du Caire, Boîte Postale N° 55, au Caire.
- 1931 COMPAGNIE UNIVERSELLE DU CANAL MARITIME DE SUEZ (Monsieur l'Agent Supérieur de la), 20, Sharia Dar El-Chefa, Kasr El-Doubara, Boîte Postale N° 2120, au Caire.
- 1944 COYNE (Dr. F.P.), c/o United Kingdom Commercial Corporation, 14, Sharia Darih Saad, au Caire.
- 1934 CRÉDIT FONCIER EGYPTIEN (Monsieur l'Administrateur-Délégué), 35, Sharia El-Malika Farida, au Caire.
- 1944 DAIRA DRANEHT Pacha, Sarawella, par Kafr-Dawar, Basse-Egypte.
- 1938 DIRECTORATE-GENERAL OF AGRICULTURE, Ministry of Economics, Baghdad, Irak.

- 1928 DOLLFUS (Robert Ph.), Museum National d'Histoire Naturelle, 57, Rue Cuvier, Paris (V^{me}), France.
- 1919 EFFLATOUN Bey (Hassan C.), Professeur d'Entomologie et Vice-Doyen de la Faculté des Sciences, Université Fouad I^{er}, Abbassieh, au Caire.
- 1944 FACULTÉ D'AGRICULTURE (Bibliothèque de la), Université Farouk I^{er}, Damanhour (Béhéra), Basse-Egypte.
- 1934 FACULTÉ D'AGRICULTURE, Université Fouad I^{er}, Sharia El-Madaret, Ghizeh, près le Caire.
- 1941 FAHMY (Aly), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1945 FEINSTEIN (Claude), 13, Sharia Djabarti, Alexandrie.
- 1914 GARBOUA (Maurice), 1, Midan Soliman Pacha, au Caire.
- 1907 GAROZZO (Arturo), Ingénieur Civil, 5, Sharia Champollion, au Caire.
- 1945 GAWAD (Dr. Ahmed Abdel), Section d'Entomologie, Faculté d'Agriculture, Université Farouk I^{er}, Damanhour, Basse-Egypte.
- 1923 GEZIRA RESEARCH FARM (The Librarian), Department of Agriculture and Forests, Wad Medani, Soudan.
- 1938 GHABN (Dr. Abdel-Aziz), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1927 GHALI Pacha (S.E. Wacef Boutros), c/o M. Saba Habachi Bey, 41, Sharia El-Malika Farida, au Caire.
- 1938 GHESQUIÈRE (J.), 87, Avenue du Castel, Bruxelles (W. St L.), Belgique.
- 1945 GREEN (J.) & Co., Département Agriculture, 147, Sharia Mohamed Bey Farid (ex Emad El-Dine), Boîte Postale N° 600, au Caire.
- 1921 GREISS (Elhamy), 215, Sharia El-Malika Nazli, au Caire.
- 1942 HABIB (Abdallah), Professeur d'Histoire Naturelle à l'Ecole Secondaire Fouad I^{er}, 2, Sharia El-Massoudi, Abbassieh, au Caire.
- 1936 HAFEZ (Mahmoud), Ph. D., Département d'Entomologie, Faculté des Sciences, Université Fouad I^{er}, Abbassieh, au Caire.
- 1944 HAFEZ (Dr. Moustafa), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1938 HAMZA (Soliman), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- HANNA (Dr. Assaad Daoud), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.

- 1944 HASSAN (Dr. Abbas Ibrahim), Département de Zoologie, Faculté des Sciences, Université Fouad I^{er}, Ghizeh, près le Caire.
- 1928 HASSAN (Dr. Ahmed Salem), Professeur de Zoologie et d'Entomologie à la Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- 1944 HASSAN (Mahrus Saleh), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1940 HIFNAOUI Bey (S.E. le Prof. Mahmoud Tewfik), Conseiller Technique du Ministère de l'Agriculture et Président de la Société Fouad I^{er} d'Entomologie, Sharia Lazogly, Héliouan, près le Caire.
- 1924 HONORÉ (A.-M.), Dr. Sc. et Dr. Phil., 2, Sharia Chebin, Héliopolis, près le Caire.
- 1927 HOUSNY (Mahmoud), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1943 HUSSEIN (Mohamed), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1938 IBRAHIM (Abdel-Hamid Ibrahim), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1940 IBRAHIM (Ahmed Housny), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1944 IMPERIAL CHEMICAL INDUSTRIES (EGYPT), S.A., Boîte Postale N° 1184, Alexandrie.
- 1936 IMPERIAL CHEMICAL INDUSTRIES (EGYPT), S.A., 26, Sharia Chérif Pacha, au Caire.
- 1928 IZZET Bey (Mohamed), 14, Midan El-Daher, au Caire.
- 1927 KAMAL (Dr. Mohamed), Doyen de la Faculté d'Agriculture, Université Farouk I^{er}, Damanhour, Basse-Egypte.
- 1922 KAOURK (Elias A.), Avocat, c/o Egyptian Markets Company Ltd, 14, Sharia Emdad El-Dine, au Caire.
- 1926 KASSEM (Mohamed), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1943 KEFL (Ahmed Hassanein El-), Démonstrateur au Département d'Entomologie, Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- 1938 KLEIN (Henry Z.), Agricultural Research Station, Boîte Postale N° 15, Rehovoth, Palestine.
- 1923 LABORATOIRES D'HYGIÈNE PUBLIQUE (Bibliothèque), Sharia El-Sultan Hussein, au Caire.
- 1931 LAND BANK OF EGYPT (Monsieur l'Administrateur-Directeur), Boîte Postale N° 614, Alexandrie.

- 1944 LEAN (Owen Bevan), Chief Locust Officer, c/o Middle East Supply Centre, G.H.Q., M.E.F., au Caire.
- 1934 LOTTE (Dr. F.), Médecin de la Compagnie Universelle du Canal Maritime de Suez, Boîte Postale N° 222, Port-Saïd.
- 1931 LYCÉES FRANÇAIS (Monsieur le Proviseur), 2-4, Sharia Youssef El-Guindi, au Caire.
- 1932 MADWAR (Dr. Saadallah Mohamed), Directeur de la Section Anti-Malaria, Ministère de l'Hygiène Publique, Sharia Meglis El-Nowab, au Caire.
- 1927 MANSOUR (Prof. Dr. Kamel), D. Sc., Département de Zoologie, Faculté des Sciences, Université Fouad I^{er}, Abbassieh, au Caire.
- 1943 MILAD (Dr. Anis Boutros), Entomologiste attaché à la Section de Pathologie Animale (Département Vétérinaire du Ministère de l'Agriculture), 1, Sharia Yacoub, El-Dawawine, au Caire.
- 1921 MISTIKAWY (Abdel-Megid El-), Département des Coopératives, Ministère des Affaires Sociales, 22, Sharia Gamah El-Ismaïli, au Caire.
- 1945 MOAZZO (Polychronis Georges), 2, Sharia Young, Alexandrie.
- 1933 MOCHI (Prof. Dr. Alberto), Villa i Sarici, Collina, presso Pistoia, Italie.
- 1944 MORCOS (Georges), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1929 MOSSERI (Dr. Henri), 25, Sharia Talaat Harb Pacha, au Caire.
- 1944 MOURSİ (Dr. Abdel-Fattah Aly), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1943 NAHAL (Abdel-Kader Moustafa El-), Démonstrateur au Département d'Entomologie, Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- » NAKHLA (Naguib), Assistant Technique, Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1944 NASR EL-SAYED (Dr. Mahmoud), Microbiologiste aux Laboratoires Municipaux de Chimie et de Bactériologie, 8, Sharia Stanley Bay, Bulkeley, Ramleh.
- 1942 ORBI (Mahmoud Ismail El-), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1944 PALMONI (J.), Beth Gordon, Dagania A, P.O. Kinneret, Palestine.
- 1939 PANTOS (Jean G.), Ingénieur Agronome, Buta (Uele), Congo Belge.
- 1911 PETROFF (Alexandre), 27, Sharia Crafton, Bulkeley, Ramleh.

- 1944 PLANTA & C^o (J.); Boîte Postale N° 450, Alexandrie.
- 1928 PRIESNER (Prof. Dr. H.), au Caire.
- 1942 RAWHY (Soheil Hussein), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1932 RIVNAY (E.), Agricultural Research Station, Boîte Postale N° 15, Rehovoth, Palestine.
- 1943 RIZKALLAH (Ramses), Assistant Technique, Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1925 ROYAL ENTOMOLOGICAL SOCIETY OF LONDON (The), 41, Queen's Gate, South Kensington, Londres, S.W. 7, Angleterre.
- 1943 SAMAK (Mohamed Mohamed) Assistant Technique, Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1941 SAWAF (Saleh Kamel El-), Faculté d'Agriculture, Université Farouk I^{er}, Damanhour, Basse-Egypte.
- 1936 SAYED (Dr. Mohamed Taher El-), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1938 SHAFIK Bey (Dr. Mohamed), Directeur Technique de la Société Financière et Industrielle d'Egypte, Post Office Bag, Kafr-Zayat, Basse-Egypte.
- 1924 SHAW (Fred), Northgate, Sherborne, Dorset, Angleterre.
- 1943 SHEHATA (Ahmed Mohamed El-Tabey), Démonstrateur au Département d'Entomologie, Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- 1938 SOCIÉTÉ DU NAPHTÉ, S.A. (A.I. Mantacheff & Co.), 33, Sharia Chérif Pacha, au Caire.
- 1921 SOCIÉTÉ ROYALE D'AGRICULTURE, Laboratoire d'Entomologie de la Section Technique, Boîte Postale N° 63, au Caire.
- 1934 SOLIMAN (Prof. Dr. Hamed Seleem), Doyen de la Faculté d'Agriculture, Université Fouad I^{er}, Sharia El-Madares, Ghizeh, près le Caire.
- 1928 SOLIMAN (Dr. Labib Boutros), Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.
- 1926 TEWFIK (Mohamed), Conservateur des collections entomologiques de la Faculté des Sciences, Université Fouad I^{er}, Abbassieh, au Caire.
- 1935 TRACTOR AND ENGINEERING COMPANY, S.A.E. (The), 18, Sharia Emad El-Dine, Boîte Postale N° 366, au Caire.
- 1945 TRIANTAPHYLIDIS (N.P.), Hôtel Windsor, au Caire.
- 1926 WALY (Dr. Mohamed), Conférencier en Zoologie, Faculté des Sciences, Université Fouad I^{er}, Abbassieh, au Caire

- 1912 WILKINSON (Richard), Immeuble Baehler, 157, Sharia Fouad I^{er}, Zamalek, au Caire.
- 1943 ZAKI (Mikhaïl), Section d'Entomologie, Musée Agricole Fouad I^{er}, Dokki (Ghizeh), près le Caire.
- 1944 ZERVUDACHI (Emmanuel), Boîte Postale N° 1277, Alexandrie.
- 1938 ZOHEIRY (Mohamed Soliman El-), Directeur de la Section d'Entomologie, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.

Envois divers

Bibliothèque du Cabinet de SA MAJESTÉ LE ROI, Palais d'Abdine, au Caire.

Bibliothèque privée de SA MAJESTÉ LE ROI, Palais d'Abdine, au Caire.

Son Excellence le Grand Chambellan de Sa Majesté le Roi, Palais d'Abdine, au Caire.

Son Excellence le Président du Conseil des Ministres, au Caire.

Son Excellence le Ministre des Finances, au Caire.

Son Excellence le Ministre de l'Agriculture, Dokki (Ghizeh), près le Caire.

Son Excellence le Ministre de l'Instruction Publique, Sharia El-Falaki, au Caire.

Son Excellence le Président de la Cour des Comptes, au Caire.

Son Excellence le Président du Conseil d'Administration de la Société Royale d'Agriculture, Boîte Postale N° 63, au Caire.

Monsieur l'Administrateur-Délégué du Crédit Foncier Egyptien, 35, Sharia El-Malika Farida, au Caire.

Son Excellence le Directeur-Délégué de la Société Générale des Sucreries et de la Raffinerie d'Egypte, 12, Sharia Talaat Harb Pacha (Boîte Postale N° 763), au Caire.

Son Excellence le Président du Conseil d'Administration de la Banque Misr, 151, Sharia Emad El-Dine, au Caire.

Monsieur le Directeur Général de l'Imperial Chemical Industries (Egypt), 26, Sharia Chérif Pacha, au Caire.

Monsieur le Directeur Général de la Société Financière et Industrielle d'Egypte, 2, Sharia Fouad I^{er}, Alexandrie.

Son Excellence le Sous-Secrétaire d'Etat, Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.

Son Excellence le Secrétaire-Général du Ministère de l'Agriculture, Dokki (Ghizeh), près le Caire.

Bibliothèque de l'Université Farouk I^{er}, Alexandrie.

Son Excellence l'Administrateur Général de la Khassa Royale, Palais d'Abdine au Caire.

Son Excellence le Directeur du Cabinet Européen de Sa Majesté le Roi, Palais d'Abdine, au Caire.

Bibliothèque du Ministère de l'Instruction Publique, Sharia El-Falaki, au Caire.

Bibliothèque Egyptienne, Midan Bab El-Khalq, au Caire.

Bibliothèque du Musée Agricole Fouad I^{er}, Dokki (Ghizeh), près le Caire.

Echanges

Afrique Occidentale Française

Institut Français d'Afrique Noire, Boîte Postale N° 206, Dakar.

Afrique du Sud

South African Museum, P.O. Box 61, Cape Town.

Department of Agriculture of the Union of South Africa (The Agricultural Journal of the Union of South Africa), Pretoria.

Department of Agriculture of the Union of South Africa, Division of Entomology, P.O. Box 513, Pretoria.

The Director, The Transvaal Museum, P.O. Box 413, Pretoria, South Africa.

The Honorary Secretary, Entomological Society of Southern Africa, P.O. Box 103, Pretoria.

Algérie

Société d'Histoire Naturelle de l'Afrique du Nord, Faculté des Sciences d'Alger, Alger.

Allemagne

Deutsche Entomologische Gesellschaft, 43, Invalidenstrasse, Berlin (IV).

Senckenbergischen Naturforschenden Gesellschaft, Bibliothek, Viktoria Allee 9, Frankfurt A/M.

Bücherei des Zoologischen Museums, 43, Invalidenstrasse, Berlin N 4.

Gesellschaft für Vorratsschutz E.V. (Mitteilungen der), 31, Zimmermannstrasse, Berlin-Steglitz.

Bücherei der Biologischen Reichsanstalt für Land- und Forstwirtschaft, 19, Königin-Luise-Str., Berlin-Dahlem.

Deutsches Entomologisches Institut der Kaiser Wilhelm Gesellschaft (Arbeiten über morphologische und taxonomische Entomologie, Arbeiten über physiologische und angewandte Entomologie), 20, Gossler Strasse, Berlin-Dahlem.

Deutsche Kolonial und Uebersee-Museum, Bahnhofplatz, Brême.

Administration-Kanzlei des Naturhistorischen Museums, Burgring 7, Vienne (I).

Zoologisch-Botanische Gesellschaft, 2, Mechelgasse, Vienne (III).

Koleopterologische Rundschau, c/o Zoologisch-Botanische Gesellschaft, 2, Mechelgasse, Vienne (III).

Naturhistorischer Verein der Rheinlande und Westfalens (Entomologische Blätter, Decheniana), 4, Maarflach, Bonn.

Münchener Entomologischen Gesellschaft E.V. (Mitteilungen der), c/o Dr. W. Forster, 51, Neuhauser Strasse (Zoolog. Staatssamlg.), Munich (2).

Angleterre

The Imperial Institute of Entomology, Publication Office (Review of Applied Entomology, 41, Queen's Gate, London S.W. 7.

Zoological Museum (Novitates Zoologicæ), Tring Park, Tring, Herts.

The Apis Club (The Bee World), The Way's End, Foxton, Royston, Herts.

Cambridge Philosophical Society, New Museums, Free School Lane, Cambridge.

The Librarian, The Zoological Society of London, Zoological Gardens, Regent's Park, London, N.W.8.

The Librarian, Department of Entomology, University Museum, Oxford.

Argentine

Instituto Biologico de la Sociedad Rural Argentina, Buenos Aires.

Sociedad Cientifica Argentina, 1145, Calle Santa Fé, Buenos Aires.

Sociedad Entomologica Argentina, 665, Calle San Martin, Buenos Aires.

Museo Nacional de Historia Natural « Bernadino Rivadavia », Casilla de Correo N° 470, Buenos Aires.

Ministerio de Agricultura (Boletin del Ministerio de Agricultura de la Nacion), Bibliotheca, 974, Paseo Colon, Buenos Aires.

Australie

The Australian Museum (Records of the Australian Museum), Sydney, N.S.W.

The Entomologist's Office, Department of Agriculture, Sydney, N.S.W.

The Public Library, Museum, and Art Gallery of South Australia, Box 386 A, G.P.O., Adelaide, South Australia.

The Library of the Division of Economic Entomology, P.O. Box No. 109, Canberra City, F.C.T.

The Linnean Society of New South Wales, Science House, Gloucester and Essex Streets, Sydney, N.S.W.

Belgique

Société Entomologique de Belgique, Musée Royal d'Histoire Naturelle de Belgique, 31, Rue Vantier, Ixelles-Bruxelles.

Société Scientifique de Bruxelles, Secrétariat, 11, Rue des Récollets. Louvain.

Bulletin de l'Institut Agronomique et des Stations de Recherches de Gembloux, Institut Agronomique de l'Etat, Gembloux.

Lambillionnea, Revue Mensuelle de l'Union des Entomologistes Belges (M. F. DERENNE), 123, Avenue de la Couronne, Ixelles (Bruxelles).

Annales du Musée du Congo Belge, Tervuren.

Association des Ingénieurs sortis de l'Institut Agronomique de l'Etat, à Gembloux, 35, Avenue des Volontaires, Anderghem-Bruxelles.

Brésil

Museu Nacional do Rio de Janeiro, Rio de Janeiro.

Instituto Biologico, Bibliotheca, Caixa Postal 2821, São Paulo.

Instituto Oswaldo Cruz, Caixa de Correio 926, Rio de Janeiro.

Arquivos do Serviço Florestal, 1008, Jardim Botânico, Rio de Janeiro.

Academia Brasileira de Ciencias (Anais da Academia Brasileira de Ciencias), Caixa Postal 229, Rio de Janeiro.

Bulgarie

Institutions Royales d'Histoire Naturelle, Musée Royal d'Histoire Naturelle, Palais Royal, Sofia.

Société Entomologique de Bulgarie, Musée Royal d'Histoire Naturelle, Palais Royal, Sofia.

Société Bulgare des Sciences Naturelles, Musée Royal d'Histoire Naturelle, Palais Royal, Sofia.

Canada

Entomological Society of Ontario (The Canadian Entomologist & Reports), Guelph, Ontario.

Bibliothèque du Ministère Fédéral de l'Agriculture, Edifice de la Confédération, Ottawa.

Department of Agriculture, Entomological Branch, Ottawa.

Nova Scotian Institute of Science, Halifax.

Chine

The Lingnan Science Journal, Lingnan University, Canton.

Bulletin of the Biological Department, Science College, National Sun Yat-Sen University, Canton.

Bureau of Entomology of the Chekiang Province, West Lake, Hangchow.

Chypre

The Cyprus Agricultural Journal (The Office of the Government Entomologist), Nicosia.

Colombie (République de), Amérique du Sud

Facultad Nacional de Agronomía (Biblioteca de la), Medellín.

Cuba

Sociedad Cubana de Historia Natural « Felipe Poey » (Memorias),
c/o Dr. Carlos Guillermo Agnayo, 25 N° 254, Vedado, La Havane.

Danemark

Entomologisk Forening, Zoologisk Museum, Krystalgade, Copenhague.

Egypte

Ministère de l'Agriculture, Bibliothèque de la Section d'Entomologie,
Dokki (Ghizeh), près le Caire.

Société Royale d'Agriculture, Bibliothèque de la Section Technique, Boîte
Postale N° 63, au Caire.

Union des Agriculteurs d'Egypte, 25, Sharia El-Cheikh Aboul-Sebaa, au
Caire.

The Bee Kingdom, 60, Sharia Menascé, Alexandrie.

Al-Fellaha, Boîte Postale N° 2047, au Caire.

Société Royale de Géographie d'Egypte, 45, Sharia El-Cheikh Youssef,
au Caire.

The Journal of the Royal Egyptian Medical Association, Kasr El-Aini
Post Office, au Caire.

Société Fouad I^{er} d'Economie Politique, de Statistique et de Législation,
Boîte Postale N° 732, au Caire.

Institut d'Egypte, 13, Sharia El-Sultan Hussein, au Caire.

Bibliothèque de la Faculté des Sciences, Université Fouad I^{er}, Abbas-
sieh, au Caire.

Equateur (République de l'), Amérique du Sud

Director General de Agricultura (Revista del Departamento de Agricul-
tura), Quito.

Boletín de la Sección Agrícola del Banco Hipotecario del Ecuador, Apar-
tado 685, Quito.

Espagne

Instituto Nacional de 2^a Ensenanza de Valencia, Laboratorio de Hidro-
biología Española, Valencia.

Junta para ampliación de Estudios e Investigaciones Científicas, 4, Du-
que de Medinaceli, Madrid.

Junta de Ciencias Naturales de Barcelona, Museo Municipal, Barcelona.

Eos, Revista Española de Entomología, Instituto Español de Entomo-
logía, Palacio del Hipódromo, Madrid (VI).

Real Academia de Ciencias y Artes de Barcelona, 9, Rambla de los
Estudios, Barcelona.

Sociedad Espanola de Historia Natural, Museo Nacional de Ciencias Naturales, Hipodromo, Madrid (VI).

Estacion de Patologia Vegetal, Instituto Nacional Agronomico, La Monclea, Madrid (VIII).

Etats-Unis

The Research Library, Buffalo Society of Natural Sciences, Buffalo Museum of Science, Humboldt Park, Buffalo, New-York.

University of Illinois Library, Exchange Division, Urbana, Illinois.

The Library, American Museum of Natural History, Central Park, West at 79th Street, New-York City.

Pacific Coast Entomological Society (The Pan-Pacific Entomologist), California Academy of Sciences, Golden Gate Park, San Francisco, California.

Academy of Natural Sciences, Entomological Section, Lagon Square, Philadelphia.

Experiment Station of the Hawaiian Sugar Planters' Association, P.O. Box 411, Honolulu, T.H., Hawaii.

Hawaiian Entomological Society, c/o Experiment Station of the Hawaiian Sugar Planters' Association, P.O. Box 411, Honolulu, T.H., Hawaii.

Carnegie Museum, Department of the Carnegie Institute, Pittsburgh, Pennsylvania.

American Entomological Society (The), 1900, Race Street, Philadelphia, Pa.

United States Department of Agriculture Library, Washington, D.C.

General Library, University of Michigan, Ann Arbor, Michigan.

United States National Museum, Smithsonian Institution, Washington, D.C.

Smithsonian Institution Library, Washington, D.C.

The Library, New-York State College of Agriculture and Agricultural Experiment Station, Cornell University, Ithaca, New-York.

New-York Academy of Sciences, New-York.

Pennsylvania State Health Department, Pennsylvania.

University of California Library, Berkeley, California.

University of California, Citrus Experimental Station Library, Riverside, California.

Wisconsin Academy of Sciences, Arts, and Letters, Madison, Wisconsin.

The Library, Minnesota Agricultural Experiment Station, University Farm, Saint Paul, Minnesota.

Museum of Comparative Zoology, Harvard College, Cambridge, Mass.

The Philippine Agriculturist, Library, College of Agriculture, Agricultural College, Laguna, Philippine Islands.

Editorial Office, The American Midland Naturalist, University of Notre Dame, Notre Dame, Indiana.

Marine Biological Laboratory, Library, Woods Hole, Mass.

The Library, State College of Washington, Agricultural Experiment Station, Pullman, Washington.

Finlande

Societas Entomologica Helsingforsiensis (Notulae Entomologicae), Museum Zoologicum, Helsingfors.

Societas pro Fauna et Flora Fennica, Kaserngatan 24, Helsinki.

Societas Zoologica-Botanica Fennica Vanamo, Säätytalo, Snellmanstr. 9-11, Helsinki.

Société Entomologique de Finlande (Annales Entomologici Fennici), Institut de Zoologie Agricole et Forestière de l'Université, Snellmaninkatu 5, Helsinki.

France

L'Echange, Revue Linnéenne, Digoin (Saône et Loire).

Revue française d'Entomologie, Museum National d'Histoire Naturelle (Entomologie), 45 bis, Rue de Buffon, Paris (V°).

Revue Scientifique du Bourbonnais et du Centre de la France, 22, Avenue Meunier, Moulins (Allier).

Société d'Etudes des Sciences Naturelles de Nîmes, 6, Quai de la Fontaine, Nîmes (Gard).

Société de Pathologie Végétale et d'Entomologie Agricole de France, Laboratoire de Pathologie Végétale, Institut National Agronomique, 16, Rue Claude Bernard, Paris (V°).

Société Linnéenne de Bordeaux, Athénée, 53, Rue Des Trois Conils, Bordeaux.

Société Linnéenne de Lyon, 33, Rue Bossuet (Imm. Municipal), Lyon.

Société des Sciences Naturelles de l'Ouest de la France, Nantes (Loire Inférieure).

Association des Naturalistes de Levallois-Perret, 153, Rue du Président Wilson (Domaine de la Planchette), Levallois-Perret (Seine).

Société Linnéenne du Nord de la France, 81, Rue Lemerchier (M. Pouchet), Amiens.

Société Géologique de Normandie et des Amis du Museum du Havre, Hôtel des Société Savantes, 56, Rue Anatole France, Le Havre (Seine Inférieure).

Société d'Histoire Naturelle de Toulouse, Bibliothèque Universitaire de la Faculté de Médecine, Allée Saint-Michel, Toulouse.

Société Entomologique de France, Institut National Agronomique, 16, Rue Claude Bernard, Paris (V°).

Société d'Etudes Scientifiques de l'Aude, Carcassone (Aude).

Annales des Epiphyties et de Phytogénétique, Centre National des Recherches agronomiques, à Versailles, France.

Museum National d'Histoire Naturelle, Bibliothèque, 8, Rue de Buffon, Paris (V°).

Société de Zoologie Agricole (Revue de Zoologie Agricole et Appliquée), Faculté des Sciences, Institut de Zoologie, 40, Rue Lamartine, Talence (Gironde).

Grèce

Institut Phytopathologique Benaki, Kiphissia (près Athènes).

Bibliothèque de l'Institut et Musée Zoologique de l'Université, Athènes.

Hollande

Bibliotheek van der Nederlandsche Entomologische Vereeniging, p/a Bibliotheek van het Kolonial Instituut, 62, Mauritskade, Amsterdam.

Landbouwhoogeschool Laboratorium voor Entomologie, Berg 37, Wageningen.

Hongrie

Museum National Hongrois (Annales Historico-Naturales), 13, Baross-utca, Budapest VIII.

Indes Anglaises

Zoological Survey of India (Records of the Indian Museum), Indian Museum, Calcutta.

Madras Government Museum, Connemara Public Library, Egmore, Madras.

Office of the Director, Imperial Agricultural Research Institute, New Delhi.

Indes Néerlandaises

Den Directeur van's Lands Plantentium, Buitenzorg, Java.

Italie

Museo Civico di Storia Naturale « Giacomo Doria », 9, Via Brigata Liguria, Genova (102).

Rivista di Biologia Coloniale, 326, Viale Regina Margherita (Policlinico), Roma.

Museo Civico di Storia Naturale di Trieste (Atti del), 4, Piazza Hortis Trieste (10).

Società dei Naturalisti in Napoli, Reale Università, Via Mezzocannone, Napoli.

Società Entomologica Italiana, Museo Civico di Storia Naturale, 9, Via Brigata Liguria, Genova (102).

Società Adriatica di Scienze Naturali, 7, Via dell'Annunziata, Trieste.

La Reale Stazione di Entomologia Agraria (Redia), 19, Via Romana, Firenze (32).

La Reale Stazione Sperimentale di Gelsicoltura e Bachicoltura di Ascoli Piceno.

Istituto Zoologico della Reale Università di Napoli (Biblioteca del), Via-Mezzocannone, Napoli.

Laboratorio di Zoologia Generale e Agraria del Reale Istituto Superiore Agrario in Portici, Portici (Napoli).

Reale Laboratorio di Entomologia Agraria di Portici (Bolletino del), Portici (Napoli).

Bibliothèque de l'Institut International d'Agriculture (Moniteur International de la Protection des Plantes), Villa Umberto I, Rome (110).

Società italiana di Scienze Naturali, Palazzo del Museo Civico di Storia Naturale, Corso Venezia, Milano.

Istituto di Zoologia della Reale Università di Genova (Bollettino dei Musei di Zoologia e di Anatomia comparata), 5, Via Balbi, Genova.

Società dei Naturalisti e Matematici di Modena, presso la Reale Università, Modena.

Istituto di Entomologia della Reale Università, 6, Via Filippo Re, Bologna (125).

Reale Accademia di Scienze, Lettere ed Arti in Padova, 15, Via Accademia, Padova (Veneto).

Museo di Storia Naturale della Venezia Tridentina (« Memorie del Museo di Storia Naturale della Venezia Tridentina » e « Studi Trentini di Scienze Naturali »), Casella Postale 95, Trento.

Reale Istituto Agronomico per l'Africa Italiana (L'Agricoltura Coloniale), Ministero dell'Africa Italiana, 9, Viale Principe Umberto, Firenze.

Istituto di Entomologia Agraria e Bachicoltura della Reale Università (Bollettino di Zoologia Agraria e Bachicoltura), 2, Via Celoria, Milano (133).

Società Veneziana di Storia Naturale (presso Sig. Antonio Giordani Soika), S. Marco 254, Venezia.

Japon

Saghalien Central Experiment Station, Konuma, Saghalien.

The Ohara Institute for Agricultural Research, Library, Kurashiki, Okayama-Ken.

Imperial Agricultural Experiment Station (Journal of the), Nishigahara, Tokyo.

Departement of Agriculture, Government Research Institute, Taihoku, Formosa.

The Kansai Entomological Society, c/o N. Tosawa, Shibakawa-Noen, Kotoen, Mukogun, Hyogo-ken.

« Mushii », Entomological Laboratory, Department of Agriculture, Kyushu Imperial University, Fukuoka.

Takeuchi Entomological Laboratory (Tenthredo, Acta Entomologica), Shinomyia Yamashina, Kyoto.

Kenya Colony (British East Africa)

East Africa and Uganda Natural History Society, Coryndon Memorial Museum, P.O.Box 658, Nairobi.

Libye

Museo Libico di Storia Naturale, Piazza Santa Maria degli Angeli, Tripoli d'Africa.

Maroc

Société des Sciences Naturelles du Maroc, Institut Scientifique Chérifien, Avenue Biarnay, Rabat.

Défense des Végétaux, Service de l'Agriculture et de la Colonisation, Direction des Affaires Economiques, Rabat.

Mexique

Junta Nacional Directora de la Campana contra la Langosta (Junosta), Biblioteca, Departamento Directivo, Veracruz.

Biblioteca del Instituto Biotechnico, Calzada Mexico-Tacuba N° 295, Col. Anahuac, D.F.

Biblioteca del Instituto de Biologia, Chapultepec (Casa del Lago), Mexico, D.F.

Anales de la Escuela Nacional de Ciencias Biologicas, Apartado Postal 7016, Mexico, D.F.

Norvège

Tromso Museum Library, Tromso.

Panama (République de)

Departamento Seccional de Agricultura (Boletin Agricola), Panama.

Pologne

Musée Zoologique Polonais, Wilcza 64, Varsovie (1).

Société Polonaise des Entomologistes, Rutowskię 18, Lwow.

Institut de Recherches des Foręts de l'Etat, Wawelska 54, Varsovie.

Portugal

Société Portugaise des Sciences Naturelles, Instituto de Fisiologia, Faculdade de Medicina, Lisbonne.

Museum Zoologique de l'Université de Coimbra, Largo Marquês de Plombal, Coimbra.

Associação da Filosofia Natural (Bibliotecario da), Faculdade de Ciencias, Porto.

Roumanie

Société Transylvanienne des Sciences Naturelles (Siebenbürgischer Verein für Naturwissenschaften), Hermannstadt, Sibiu.

Academia Romana, Bibliothèque, Calea Victoriei, 125, Bucarest.

Russie (U.S.S.R.)

Société Entomologique de Russie (Revue Russe d'Entomologie et Horae), Musée Zoologique de l'Académie des Sciences, Léninegrad.

Bibliothèque de l'Académie des Sciences de l'Ukraine, 58a, Rue Korolenko, Kiew (Ukraine).

Société des Naturalistes de Kiew, 37-10, Rue Korolenko, Kiew (Ukraine).

Institut des Recherches Biologiques de l'Université de Perm, Perm II, Zaimka.

Institute for Plant Protection, Bureau of Applied Entomology and Zoology, Library, 10, Elagin Ostrov, Léninegrad.

Rédaction du Journal « Plant Protection », 7, Rue Tchaikovsky, Leningrad.

Institute for controlling Pests and Diseases, Library, 7, Tchaikovsky Str., Leningrad 28.

Siam

Department of Agriculture and Fisheries, Entomology Section, Bangkok.

Suède

K. Svenska Vetenskapsakademien i Stockholm (Bibliotek), Stockholm 50. Entomologiska Foreningen, Brottningsgatan 94, Stockholm.

Göteborgs Kungl. Vetenskaps-och Vitterhets Samhälles, Göteborg.

Statens Växtskyddsanstalt, Stockholm 19.

Bibliothèque de l'Université de Lund, Lund.

Suisse

Bibliothèque de la Société Entomologique Suisse, Musée d'Histoire Naturelle, Berne.

Zentralbibliothek, Naturforschenden Gesellschaft, Zurich.

Tchécoslovaquie

Societas Entomologica (Casopis), Karlova 3, Prague II.

Section Entomologique du Musée National de Prague (Sbornik), Prague

Bibliothèque de la Société Zoologique Tchecoslovaque, Institut de Zoologie, Karlov 3, Prague II.

Uruguay (République de l')

Escuela de Veterinaria del Uruguay (Anales de la Escuela de Veterinaria del Uruguay), Itazaingo 1461, Montevideo.

Sociedad de Biología de Montevideo, Casilla de Correo 567, Montevideo.

Yougoslavie

Societas Entomologica Jugoslavica (Glasnik), 17, Garasaninovo ulica, Belgrade.

PROCÈS-VERBAUX DES RÉUNIONS

Commission Anti-Acridienne du M.E.S.C.

Les travaux de la Commission pour la lutte anti-acridienne dans le Moyen-Orient se sont déroulés au Caire, du 2 au 4 Janvier 1945, au Siège de la Société Fouad I^{er} d'Entomologie.

Réunion Amicale du 28 Janvier 1945

Cette manifestation annuelle, destinée à perpétuer le souvenir de l'inauguration de notre Siège par le très regretté Roi FOUAD I^{er}, a été empreinte d'un très sincère et cordial esprit de collaboration. Divers problèmes entomologiques y furent abordés et discutés.

Séance du Conseil du 14 Février 1945

Présidence de Monsieur le Professeur H. C. EFFLATOUN Bey,
Vice-Président

Nécrologie :

Le Secrétaire Général a le regret de faire connaître le décès de notre collègue JOSEPH JULIEN, survenu à Alexandrie le 12 Janvier 1945.

Est également annoncée la mort du Docteur Avocat GIOVANNI FERRANTE, né à Mola di Bari (Pouilles, Italie) le 27 Juillet 1858, décédé au Caire le 27 Janvier 1945. Maître FERRANTE avait été un des fondateurs de la Société et son premier Président (1907). Il fut encore Président de la Société en 1908 et en 1917, et Vice-Président de 1909 à 1915 et de 1926 à 1932. En 1933, la Société lui conférait le titre de Vice-Président Honoraire, en hommage des éminents services rendus à l'entomologie et à la Société par le défunt.

Subvention :

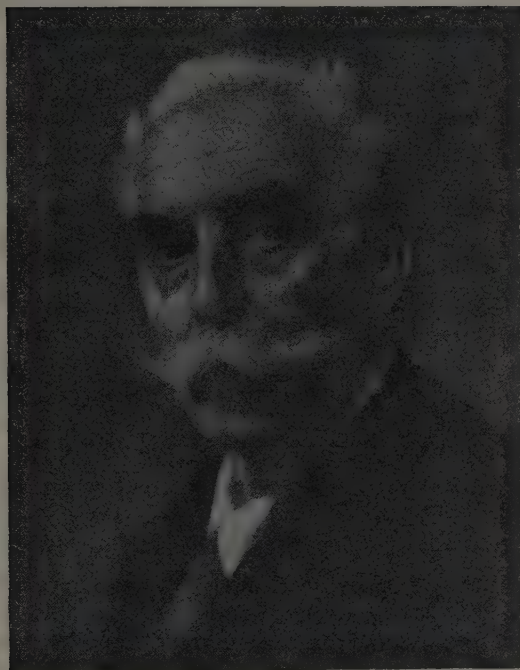
La subvention du Ministère de l'Agriculture pour 1944, de L.Eg. 1000, a été reçue le 31 Décembre 1944. Le Conseil remercie.

Donations :

La Société a reçu L.Eg. 50 du CRÉDIT FONCIER EGYPTIEN et L.Eg. 15 de la SOCIÉTÉ FINANCIÈRE ET INDUSTRIELLE D'EGYPTE. Le Conseil remercie.

Rapport Annuel :

Le Conseil approuve les termes des Rapports du Secrétaire Général, du Trésorier et des Censeurs, devant être présentés à l'Assemblée Générale Ordinaire du 12 Mars 1945.



GIOVANNI FERRANTE (1858-1945)

**Assemblée Générale Ordinaire
du 12 Mars 1945**

Présidence de Monsieur le Professeur H. C. EFFLATOUN Bey,
Vice-Président

Rapport du Secrétaire Général (exercice 1944) .

Messieurs,

Aux termes des Articles 24, 25 et 26 de nos Statuts, vous avez été convoqués en Assemblée Générale Ordinaire pour prendre connaissance des Rapports du Secrétaire Général, du Trésorier et des Censeurs sur la situation morale, financière et comptable de la Société, donner au Conseil décharge de sa gestion, et procéder, par voie d'élections, au remplacement des Membres

sortants du Conseil, ainsi que des deux Censeurs chargés de la vérification des comptes de l'Exercice en cours.

A notre dernière Assemblée Générale nous vous faisons part de nos appréhensions au sujet de l'avenir de la Société. Mais notre Auguste Souverain n'est étranger à aucun des soucis qui peuvent toucher les institutions scientifiques fondées ou patronnées par Son très regretté Père. Le 17 Mai, honorant de Sa visite le Siège de la Société Fouad I^{er} d'Entomologie et agissant en étroite harmonie avec la pensée de Son Auguste Père, Sa Majesté le Roi Farouk I^{er} manifestait une fois de plus Sa bienveillante protection pour une œuvre d'un caractère national, lui donnant ainsi une garantie morale de continuité et de développement sous l'égide du Trône.

Le Souverain parcourut toutes les sections de la Société, écouta avec bienveillance et intérêt les explications qui Lui furent données. Puis Elle signa sur le même Livre d'Or dans lequel est pieusement conservée la signature que le très regretté Roi Fouad I^{er} y apposa lors de l'inauguration du nouveau Siège de la Société, le 28 Janvier 1928.

Ayant exprimé Sa haute satisfaction pour tout ce qu'Elle avait vu, Sa Majesté se retira, tandis qu'au dehors les applaudissements frénétiques et les ovations de la foule se répercutaient au loin.

La protection et l'encouragement des Souverains a toujours été un des facteurs principaux de succès. A l'occasion de Sa visite, Sa Majesté fit à la Société un don de 500 livres. D'ordre du Roi, cinq spécimens ornithologiques naturalisés d'espèces rarissimes, provenant des chasses royales et qui faisaient partie des collections privées de Sa Majesté conservées au musée d'histoire naturelle d'Inchas, sont venus enrichir nos collections. Une brochure que le Souverain venait de recevoir d'Alger et traitant des nouvelles méthodes insecticides, puis encore 29 espèces d'insectes non représentés dans nos collections suivirent ces dons. D'autre part, Son Excellence l'Administrateur Général de la Khassa Royale reçut l'ordre d'étudier la situation générale de la Société à toutes fins utiles.

Nous sommes heureux de pouvoir adresser ici au Souverain, seigneur splendide et généreux, l'hommage de notre profonde et respectueuse reconnaissance.

Nous remercions Son Excellence l'Administrateur Général de la Khassa Royale pour sa grande diligence dans l'accomplissement de la mission dont Elle avait été chargée. Nos remerciements vont également au Conseil des Ministres, à Son Excellence le Ministre de l'Agriculture et à Son Excellence le Président de la Cour des Comptes, qui nous ont accordé ou approuvé une subvention de 1000 livres.

La Société Royale d'Agriculture, le Crédit Foncier Egyptien, la Banque Misr, l'Imperial Chemical Industries, et la Société Générale des Sucreries

et de la Raffinerie d'Egypte ont marqué leur sollicitude en maintenant leur donation annuelle de 50, 50, 25, 25 et 25 livres respectivement. Nous réitérons ici toute notre gratitude aux Directions de ces grandes institutions égyptiennes.

Notre collègue le Docteur A.-M. Honoré songe à quitter l'Egypte dès que les circonstances le lui permettront. Durant sa longue et laborieuse carrière comme chef chimiste à la Société Générale des Sucreries et de la Raffinerie d'Egypte, il a recueilli un matériel entomologique important, notamment des Hyménoptères Aculéates. Il en a fait don à notre Société. En outre, il a enrichi notre bibliothèque d'un important lot d'ouvrages entomologiques (numéros 14171-14172 et 14230-14278 du registre), parmi lesquels des raretés bibliographiques. Qu'il reçoive ici l'expression de notre profonde gratitude pour ces généreuses donations.

L'activité de nos Membres s'est manifestée par une série de conférences faites par Messieurs les Docteurs Assaad Daoud Hanna, A.A. Moursi, Abdel Aziz El-Sayed Ghabn, et Monsieur Mohamed Hussein.

Dans le vingt-huitième volume de notre Bulletin annuel sont publiés les travaux scientifiques de nos collègues, à savoir :

Monsieur Mohamed Tewfik : Les mouvements du criquet pèlerin dans le sud-ouest de l'Arabie.

Docteur A.-M. Honoré : Revue des espèces égyptiennes du genre *Sphex* Linné.

Professeur F. S. Bodenheimer : Additions aux Coccoidea de l'Iraq, avec description de deux espèces nouvelles.

Professeur F. S. Bodenheimer : Notes sur les Coccoidea de l'Iran, avec description d'espèces nouvelles.

Monsieur E. Rivnay : Contribution à la connaissance de la *Phyllopertha nazarena* Mars., fléau du blé en Palestine.

Monsieur D. L. Elzé : Observations sur *Brachycolus brassicae* L. en Palestine.

Monsieur Mohamed Soliman El-Zoheiry : La cécidomyie des violettes, *Dasyneura affinis* Kieffer, en Egypte.

Docteur A.-M. Honoré : Matériaux pour une Monographie des *Miscophus* d'Egypte.

Docteur F. Lotte : Note sur l'homochromie de *Sceliphron targionii* Car.

Monsieur J. Balfour-Browne : Contribution à la connaissance des *Apioninae* de Chypre.

Monsieur Mohamed Hussein : Rapport sommaire sur le travail de la Troisième Unité Anti-Acridienne Egyptienne en Arabie.

Monsieur Ahmed Salem Hassan : Notes sur l'*Eriophyes mangiferae* S.N.

Monsieur Ahmed Salem Hassan : Deux insectes nuisibles nouveaux pour l'Egypte.

Monsieur Georges Morcos : *Gynaikothrips ficorum* Marchal en Egypte.

Docteur Mamoun Abdel Salam : Les connaissances des anciens semites sur le criquet.

Monsieur Antoine Cassab : Les dégâts de la courtilière et leur importance en Egypte.

Notre contribution au développement intellectuel et scientifique du Pays a continué comme par le passé. Ainsi, à la demande du Doyen de la Faculté d'Agriculture Farouk I^{er}, nous avons accueilli durant un mois entier un des démonstrateurs du département d'entomologie et le dessinateur d'histoire naturelle de l'institution précitée, initiant le premier aux principes de l'entomologie systématique et le second à l'anatomie des insectes. En outre, des spécialistes du Ministère de l'Agriculture, des professeurs et des étudiants des Facultés des Sciences et d'Agriculture Fouad I^{er} et Farouk I^{er}, ont reçu d'innombrables informations entomologiques, références bibliographiques, et un grand nombre de déterminations d'insectes.

Le nombre de nos membres est en légère augmentation.

Il existe actuellement dans notre Bibliothèque 14304 ouvrages ou brochures, dûment enregistrés, contre 14044 l'année dernière, soit une augmentation de 261 unités. Cependant, beaucoup d'ouvrages importants nous manquent encore, et nous avons prévu une somme de 300 livres pour achats et reliures.

Votre Trésorier a établi le Bilan des Comptes de l'Exercice, dûment vérifié et approuvé par vos Censeurs, ainsi que les Prévisions Budgétaires pour l'Exercice 1945.

Aux termes de l'Article 13 de nos Statuts, le Conseil est annuellement renouvelé par tiers. Les membres sortants cette année sont les suivants : Messieurs Mohamed Soliman El-Zoheiry, le Professeur Docteur Hamed Seleem Soliman, et le Docteur Mohamed Shafik Bey. Ils sont rééligibles.

Vos Censeurs, Messieurs le Docteur A. Azadian et E. A. Kaourk, sont également rééligibles.

Nous terminons ce Rapport en dédiant nos respectueuses pensées à Sa Majesté le Roi Farouk I^{er}, et Lui exprimons nos sentiments de profond dévouement et nos vœux les plus fervents.

Signé : A. ALFIERI.

Rapport du Trésorier :

Situation au 31 Décembre 1943

Doit			Avoir		
	L.E.	MM.		L.E.	MM.
Bâtiment (pour mémoire).....	1	000	Réserve Générale.....	15243	781
Mobilier ».....	1	000	Subvention 1943 et 1944 du		
Bibliothèque ».....	1	000	Ministère de l'Agriculture..	1397	160
Collections ».....	1	000	Don de S.M. le Roi.....	500	000
Laboratoire ».....	1	000	Donations diverses.....	175	000
Portefeuille Titres.....	13187	630	Coupons.....	58	520
Banque Nationale d'Egypte....	2937	551	Intérêts.....	23	023
Compagnie du Gaz.....	4	629	Cotisations.....	83	915
Appointements et allocations de			Droits d'Inscriptions.....	2	600
vie chère.....	978	340	Mobilier.....	86	000
Publications.....	668	720			
Frais Généraux et Entretien...	253	309			
Impôts et Assurances.....	62	815			
Loyer.....	2	005			
	16569	999		18099	999

Inventaire			Passif		
Actif					
Bâtiment (pour mémoire).....	1	000	Réserve Générale.....	16134	810
Mobilier ».....	1	000			
Bibliothèque ».....	1	000			
Collections ».....	1	000			
Laboratoire ».....	1	000			
Portefeuille Titres.....	13187	630			
Banque Nationale d'Egypte....	2937	551			
Compagnie du Gaz.....	4	629			
	16134	810		16134	781

Portefeuille Titres en dépôt à la Banque Nationale d'Egypte : 18000
L.Eg. Emprunt National 3 ¼ % (1963-1973).

Signé : R. WILKINSON

Rapport des Censeurs :

En exécution du mandat que vous avez bien voulu nous confier, nous avons l'honneur de porter à votre connaissance que nous avons vérifié les Comptes de la Société Fouad 1^{er} d'Entomologie pour l'année finissant le 31 Décembre 1943 avec les registres et documents y relatifs.

Nous certifions que le Bilan reflète d'une façon exacte et sincère la situation de la Société telle qu'elle ressort des registres et des explications qui nous ont été données.

Signé : Dr. A. AZADIAN et E. KAOURK

Prévisions Budgétaires pour l'année 1945 :

Recettes			Dépenses		
	L.E.	MM.		L.E.	MM.
Subvention du Ministère de l'Agriculture	1000	000	Publications.....	600	000
Donations.....	175	000	Appointements et allocations de vie chère.....	1043	000
Coupons.....	583	000	Frais Généraux	250	000
Intérêts.....	23	000	Impôts	36	000
Vente Publications	5	000	Assurances	27	000
Cotisations.....	90	000	Abonnements Bibliothèque	5	000
Prélèvement sur capital.....	484	000	Achat ouvrages et reliures.....	300	000
			Entretien	50	000
			Loyer.....	1	000
			Imprévus.....	48	000
	2360	000		2360	000

Signé : R. WILKINSON

Décisions :

1° Le Procès-Verbal des décisions de l'Assemblée Générale Ordinaire du 22 Mars 1944 est lu et confirmé.

2° Les Rapports du Secrétaire Général, du Trésorier et des Censeurs pour l'Exercice 1944, ainsi que les prévisions budgétaires pour l'année 1945, sont lus et approuvés.

3° L'Assemblée donne décharge au Conseil de sa gestion pour l'Exercice 1944.

4° Sur la proposition du Président, l'Assemblée adopte une motion de remerciements à l'adresse de toutes les personnes et Institutions qui ont contribué aux efforts de la Société par leurs travaux ou par leurs généreuses donations, et en particulier à notre collègue le Docteur A.-M. HONORÉ. Elle

remercie également le Secrétaire Général, le Trésorier, les Membres du Conseil et les Censeurs, pour leur vigilance et leur dévouement au bon fonctionnement de la Société durant l'Exercice écoulé.

Elections :

Messieurs MOHAMED SOLIMAN EL-ZOHEIRY, le Professeur Docteur HAMED SELEEM SOLIMAN, le Docteur MOHAMED SHAFIK Bey, membres du Conseil sortants, sont réélus à l'unanimité.

Messieurs le Docteur A. AZADIAN et E. KAOURK sont réélus à l'unanimité aux fonctions de Censeurs des Comptes de la Société.

Conférence du 21 Mars 1945

Monsieur MAHMOUD TAHER : L'emploi du *Derris* comme insecticide.

Séance du Conseil du 18 Avril 1945

Présidence de S.E. le Prof. MAHMOUD TEWFIK HIFNAOUTI Bey

Donations :

La Société a reçu les donations suivantes : SOCIÉTÉ ROYALE D'AGRICULTURE, L.Eg. 50 ; BANQUE MISR, L.Eg. 25 ; IMPERIAL CHEMICAL INDUSTRIES, L.Eg. 25. Le Conseil remercie.

Admission de Membres :

Sont admis à faire partie de la Société en qualité de Membres Titulaires : Monsieur CLAUDE FEINSTEIN, d'Alexandrie, présenté par Messieurs ALEXANDRE CARNERI et ANASTASE ALFIERI ; Monsieur le Docteur AHMED KAMEL AZAB, de la Faculté d'Agriculture (Université Fouad I^{er}), présenté par Messieurs le Docteur ASSAAD DAUD HANNA et ANASTASE ALFIERI ; Monsieur POLYCHRONIS-GEORGES MOAZZO, d'Alexandrie, présenté par Messieurs ALEXANDRE CARNERI et ANASTASE ALFIERI ; Monsieur le Docteur AHMED ABDEL GAWAD, de la Faculté d'Agriculture (Université Farouk I^{er}), présenté par Messieurs le Professeur Docteur HAMED SELEEM SOLIMAN et le Docteur ASSAAD DAUD HANNA.

Bureau du Conseil pour l'Exercice 1945 :

Sont réélus : Messieurs le Professeur H. C. EFFLATOUN Bey et MOHAMED SOLIMAN EL-ZOHEIRY, *Vice-Présidents* ; Monsieur ANASTASE ALFIERI, *Secrétaire-Général* ; Monsieur RICHARD WILKINSON, *Trésorier*.

Comité Scientifique pour l'Exercice 1945 :

Sont réélus : Messieurs le Professeur H. C. EFFLATOUN Bey, MOHAMED SOLIMAN EL-ZOHEIRY, le Professeur Docteur KAMEL MANSOUR, le Professeur

Docteur HAMED SELEEM SOLIMAN, le Docteur ASSAD DAOUD HANNA, le Docteur SAADALLAH MOHAMED MADWAB, et ANASTASE ALFIERI, (membres) et

Commémoration du Neuvième Anniversaire de la mort du Roi Fouad I^{er}

Le 28 Avril 1945 la Société Fouad I^{er} d'Entomologie commémorait le Neuvième Anniversaire de la mort du Très Regretté Roi Fouad I^{er}. Les Membres du Conseil se rendirent à la mosquée de Rifai où ils déposèrent une couronne dans la mausolée royale. A l'issue de cette cérémonie ils furent s'inscrire sur les registres du palais d'Abdine. Dans l'après-midi, les Membres du Conseil ont assisté à la cérémonie qui eut lieu à l'Université Fouad I^{er} et au cours de laquelle le Président de la Société retraça, dans un discours, la grande œuvre de renaissance scientifique et intellectuelle accomplie par le défunt Grand Roi.

Conférence du 2 Mai 1945

Messieurs le Docteur A. MOURSI, le Docteur H. ZAZOU et M. A. EZZAT *versus* Messieurs M. BASHIR, A. ISSA et M. TAHER : La lutte contre les insectes par les méthodes culturales ou leur contrôle par les méthodes chimiques.

Conférence du 6 Juin 1945

Monsieur le Docteur MOHAMED KAMAL : Récents progrès dans l'Entomologie.

Conférence du 31 Octobre 1945

Monsieur MOUSTAFA HAFEZ : Les maladies transmises par les Insectes à l'Homme et aux animaux.

Séance du Conseil du 12 Décembre 1945

Présidence de S.E. le Prof. MAHMOUD TEWFIK HENAOUI Bey

Don Royal :

D'ordre de Sa Majesté le Roi, Son Excellence l'Administrateur Général de la Khassa Royale fait parvenir, pour notre Musée, quatre boîtes vitrées contenant des coléoptères égyptiens et exotiques. Le Conseil de la Société est heureux de renouveler ici, à Sa Majesté le Roi FAROUK I^{er}, l'hommage de sa profonde et respectueuse reconnaissance.

Donation :

La Société a reçu L.Eg. 20 du Ministère des Wakfs. Le Conseil remercie.

Dons à la Bibliothèque :

(1) Le Centre des Recherches Anti-Acridiennes de Londres nous a adressé, à titre gracieux, un exemplaire de l'ouvrage du Docteur B.P. UVAROV : *Locusts and Grasshoppers* (352 pages, 9 planches, Londres, 1928).

(2) Monsieur le Professeur F. SILVESTRI adresse un exemplaire de son ouvrage : « *Compendio di Entomologia Applicata* », partie speciale, volume II, fogli 1-32, Portici, 1943.

Le Conseil remercie.

Admission de Membres :

Sont admis à faire partie de la Société en qualité de Membres Titulaires : Messieurs J. GREEN & Co. et N. P. TRIANTAPHYLIDIS, présentés par Messieurs J. PANTOS et ANASTASE ALFIERI.

Réunion du Comité Scientifique :

Le Comité prend connaissance des travaux remis par leurs auteurs pour publication dans notre Bulletin (1946). L'impression des 17 travaux présentés est approuvée.

7-6

A Monograph of Egyptian Diptera

Part VI

FAMILY BOMBYLIIDAE

Section I : Subfamily Bombyliidae Homoeophthalmae

(with Plates I-XXXVIII)

by Professor H. C. EFFLATOUN Bey

[Contribution from the Faculty of Science,
Fouad I University, Cairo]

P R E F A C E

In studying the *Bombyliidae* or Bee flies of Egypt I have to a large extent had the great advantage bestowed upon the pioneer in such matters, the discovery of new forms or species, in spite of the fact that, during my collecting activities of the last twenty five years, a vast proportion of the material collected has been studied by well known specialists and authorities on Diptera such as the late Professor Bezzi, Dr. Engel and Mr. Paramonow, it is not surprising that out of the one hundred and eight species and varieties belonging to the subfamily or group *Homoeophthalmae* one genus and twenty eight species have proved to be new. In some cases, as will be seen, descriptions of new species have had to be based on single specimens; this is a regrettable necessity since the alternative would have been to allow much material to remain unnamed in collections for an indefinite period.

The present work constitutes Part VI of my Monograph of Egyptian Diptera ⁽¹⁾ and deals with the Family *Bombyliidae* or Bee flies. In 1919

(¹) H. C. Efflatoun Bey: A Monograph of Egyptian Diptera, part I, Fam. Syrphidae, *Mém. Soc. Ent. Egypte*, vol. II, fasc. 1, 1922; part II, Fam. Trypanidae, *Mém. Soc. Roy. Ent. Egypte*, vol. II, fasc. 2, 1924; part III, Fam. Tabanidae, *ditto*, vol. IV, fasc. 1, 1930; part IV, Fam. Asilidae (Section I), *ditto* vol. IV, fasc. 2, 1934; part V, Fam. Asilidae (Section II), *ditto*, vol. IV, fasc. 3, 1937.

less than fifty species of Bombyliids were recorded from Egypt, and to-day this number is more than quadrupled. For the sake of economy and convenience, as in the case of my Monograph of the *Asilidae*, this study will be published in two parts, namely Section I : *Bombyliidae Homoeophthalmae*, and Section II : *Bombyliidae Tomophthalmae*. The second Section, it is hoped, will be published soon after the first. It is much to be regretted that the beautiful coloured drawings of all the species indigenous to our fauna and executed with great talent and accuracy by Mr. Roman Strekalski cannot be printed now, owing to present war conditions, but it is hoped that this will be accomplished as soon as possible after the war. It is also to be regretted that practically no information is available hitherto on the early stages of these flies in Egypt, in as much as Engel's statement (1932-1937, *op. cit.*, p. 4) relating to the Bee-flies that « all species, of which the biology is known, have proved to be parasites of other insects » is correct and, as it is well known, that in a number of cases the host is one or other species of migratory locust, which is attacked in the egg stage by a Bombyliid larva. Austen's remarks (1937, *Bombyliidae of Palestine*, pp. 2-3) on the subject of the parasitism of locusts by Bombyliids are true; he writes : « Although it can only be in exceptional circumstances, if ever, that an invasion by a locust-swarm is prevented by the unaided operations of one or other species of these flies, yet the account of parasitisation of *Calliptamus italicus* at the Dardanelles by *Callostoma fascipennis*, reproduced on pp. 53-54 will suffice to show that such attacks must sometimes have an appreciable effect..... It is, perhaps, doubtful whether it will even prove possible to utilise *Bombyliidae*, as instruments in biological control, in campaigns against locusts, if only on account of the difficulty in breeding these flies artificially, since they do not take kindly to life in captivity. Nevertheless the fact that in many cases the host is a migratory locust at any rate adds to the importance of the family, and serves to emphasise the need for the correct identification of species ».

The present part, as in the case of the preceeding ones, must be regarded in the light of a preliminary study of the Egyptian *Bombyliidae*, and it is much hoped that its publication may have the effect of stimulating interest in such a fascinating and attractive portion of the insect fauna of Egypt. In a warm and sunny country like Egypt the *Bombyliidae*, which are « children of the South », are very well represented and the diversity of their appearance, in correspondance with a parasitic mode of life of different kinds, can scarcely fail to excite interest. In order to study and determine Bombyliids it should be well born in mind that the insects must be in good condition, because the hairs or scales, or both, with which most *Bombyliidae* are clothed are all too easily removed by rubbing, as a result of which the

flies are usually rendered quite unrecognisable, since their natural appearance is entirely altered.

I am much indebted to my friend and colleague Professor O. Zdan'sky for his untiring assistance in the literature, and to Mohamed Tewfik Effendi, curator of the Collection in my Department, for his valuable help in typewriting my manuscript and for the capture of many of the new species described below.

FAMILY BOMBYLIIDAE

Diagnosis

Orthorrhaphous brachycerous flies of minute to remarkably large size, often bearing bristles but the bristles usually concealed in the dense fourrure. Proboscis often long and porrect. Wings with the venation very variable and sometimes beautifully spotted. Legs thin and usually almost without bristles but with short or minute spicules, used for alighting purposes only; pulvilli two, well developed or atrophied; claws simple but occasionally serrate at the base. Ocelli three, always present.

General Characters

Head of very diverse shape but usually rather rounded or transverse, narrower, broader than, or as broad as the thorax and often so closely applied to the thorax that any neck is seldom conspicuously apparent. Vertex and frons not at all sunk between the eyes. Face extremely variable; jowls usually small, generally only slightly or not at all descending below the eyes. Occiput either puffed out from the eyes or quite flat and bearing long post-ocular hairs which sometimes form a sort of collar, or frequently deeply excavated in the middle forming a more or less deep furrow extending from the neck to the vertex. Ocelli always present, three. Eyes large, occupying the largest surface of the head, bare, usually touching or at least approximated in the male and in this sex also the upper facets are generally enlarged; in the female they are almost always more widely separated but in rare cases (*Systropus*) touching in both sexes; the eyes may be indented on the hind border and often possessing the beginning of a bisecting line (*Bombyliidae Tomophthalmæ*), or they may be simple, that is, not indented on the hind border (even if bisected by the different form of the facets) (*Bombyliidae Homocophthalmæ*). The mouth opening is usually large but varying in size and position in relation to the main axis of the head. Proboscis varying considerably in length from as long as the body (and then

horny and pointed) to very short and almost rudimentary (in *Oestranthrax* and *Villoestrus*); when at rest, it is porrect (when long), and retracted (when short); the basal portion of the labium may be short (when the proboscis is short) or much longer than the labella (when the proboscis is long); the labella are also varying from more or less broad and disciform to narrow, not broader than the basal portion, but cleft at the base; labrum as a rule as long as the basal portion of the labium or a little longer; the hypopharynx and the maxillae of equal lengths, the former consisting of a long pointed chitinous blade and the latter similarly shaped, except when the proboscis is long, very thin, almost threadlike. Palpi (maxillary) one- or two-jointed and variable in shape and in size. Antennae porrect, approximated or remote at the base, placed at, or somewhat above the middle and three segmented; the first segment is usually longer than the second, which is often cupshaped; the third segment is the longest, varying in shape, being almost cylindrical, or somewhat compressed, or bulb-shaped tapering to a styliform apex, not annulated, though often a distinct annulation or suture cuts off the base of the segment, and usually ending by a more or less distinct, small, one- or two-segmented style sometimes with a pencil or circle of bristly hairs, but sometimes without any process.

Thorax usually nearly quadrate, slightly or somewhat more arched, above, but often very much humped and deeply convex; chaetotactic bristles are often obsolete but frequently prealar (praesutural), supra-alar and postalar bristles are evident or even sometimes (*Toxophorinae*) an elaborate and unusual chaetotaxy is exhibited, including acrosticals, dorso centrals and additional strong bristles on the anterior border of the mesonotum, while in the *Anthracinae* closely adpressed scales often occur hidden beneath the long dense pubescence, though when these scales are abundant the pubescence is less dense. Mesopleura sometimes with a group of upturned bristles on the anterior front portion and which may be somewhat concealed by dense long pubescence. Metapleura densely long hairy (metapleural fan) or quite bare; hypopleura bare. Scutellum usually clothed like the thorax, with or without long marginal and premarginal bristles or bristly hairs and sometimes clothed only with scales, never armed; metanotum more or less well developed, usually concealed under the scutellum.

Wings (Pl. I, fig. 1) usually half open or outspread when at rest and with a venation which is subject to very wide variations, exhibiting a remarkable simplification in the smaller and more primitive forms, or an elaborate development in the higher groups. The reduced venation is manifested in the *Cyrtosiinae*, in which the genus *Cyrtosia* shows only two branches or the normally five-branched Radial Sector, while in the Genus *Empidideicus* it is reduced to one vein, $R_2 +_5$ and the 1st M_2 cell is absent (Pl. II, fig. 12a);

moreover in others the Media Sector also undergoes reduction so that the 1st M_2 cell emits only two veins to the wing margin. The costa, which is generally continued round the hind margin, sometimes ends at the apex of the wing (in *Phthiria*, *Geron*, *Toxophora*, etc.). 1st A cell more often open than closed, but sometimes closed before the margin and with a more or less long appendix or petiole. Alula sometimes strongly developed and either fringed with scale-like marginal hairs (*Anthrax*), or with longer and shaggy hairs (*Bombylius*), or bare or even rippled, but sometimes the alula and hind angle of the wing disappear. Often a more or less hook-shaped appendix is present at the base of the costa, designated by the terms: « Costal hook », « Praealar hook » or « Basal hook » (Pl. I, fig. 1, bh) and which is immediately followed by the stout basal part of the costa, known as the « basal comb », « basal costal comb » or « costal comb ». In many *Euxoprosopinae* there is a sort of fan formed of long scales on the extreme base of the wing (actually belonging to the mesonotum) and which may conceal the costal hook; this fan-shaped structure or tuft is termed « Patagium-like » by Lundbeck (1908, Dipt. Danica, II, 104) and has been erroneously termed « Wing-scale » by Becker (1916, *Annal. Mus. Nation. Hungar.*, XIV, p. 18) as the wing-scale proper is a minute hook occurring at the base of the alula and resting on the alar squama. The Frenulum is a narrow skin-like band joining the inner base of the squama with the lateral base of the scutellum and in many species (*Anthracinae* and some *Euxoprosopinae*) the frenulum bears on the margin the Plumula, formed of a small tuft of often conspicuously coloured scaly hairs. The wing membrane is often spotted, mottled or ornamented and this ornamentation varying considerably in extent and in density, but when entirely hyaline, then usually an iridescent or milky lustre is apparent, mainly caused by microscopic hairs. Frequently a small hyaline or pale, irregularly bordered spot is found on the upper border and near the distal portion of 2nd M cell, termed the « Praediscoidal spot ».

Legs rather long and somewhat fragile, made for alighting only and never for predatory purposes. Moderately strong bristles may occur beneath the femora (especially the hind pair) and rows of spicules are present on the tibiae, rarely (*Toxophorinae*) developing into obvious bristles, while a circle of terminal spines is almost always present. Occasionally the apical tarsal segment is distinctly broader than the preceding segments and the pulvilli are usually present but they may be atrophied or almost absent; empodium minute or absent and the claws are occasionally serrate at the base.

Abdomen (*Bombyliinae*) almost globular and clothed with dense furry pubescence, intermingled with which may be some longer straggling hairs,

or (*Anthracinae*) more elongate with almost parallel sides and less furry pubescence but with dense adpressed scales, or (*Cyleniinae*, *Cytherea*, etc.) with strong hind marginal bristles, or (*Systropus*, *Antonia*) very elongate slender and bare; the six to eight segments are often difficult to trace under the dense fourrure. The male genitalia (hypopygium) often turned to one side or twisted ventrally and usually inconspicuous; they are of rather simple construction and may only occasionally be made use of to distinguish between species, as they are frequently concealed by the long dense pubescence. Ovipositor often possessing a circlet of spines.

Early Stages

The metamorphoses of many species are well known, although in most cases only partially; many species of *Anthracinae* are parasitic upon the larvae of Lepidoptera, more especially upon *Noctuidae* of the genus *Agrotis*, but others are parasitic upon Aculeate Hymenoptera (*Anthophila*). *Hemipenthes* and some species of *Anthrax* are known to parasitize the larvae of Ichneumonids and Tachinids parasitical on Lepidopterous larvae, and *Argyro-moeba* and *Torophora* on larvae of solitary bees and fossorial wasps. *Callostoma* (*Callitoma*) has proved to be a check upon the ravages of a locust (*Caliptamus italicus* L.) in the Dardanelles by preying in the egg-capsule of the locust (1881, *Proc. Entom. Soc. London*, XIV-XIX). The larva of *Anthrax griseola* Klug has been accidentally bred from the pupa of a Curculionid (*Cleonus Saint-Pierrei*) by Mr. R. Boehm (1912, *Bull. Soc. Entom. Egypte*, Vol. III, p. 25, fig.) who writes:

« Le 8 avril 1912, j'ai visité, dans les environs du Caire, une localité où je savais trouver des larves de *Cleonus Saint-Pierrei* en train de construire leurs cocons pour s'abriter durant la nymphose. J'ai pu ainsi recueillir quelques-uns de ces cocons formés de terre et de sable, qui sont fixés aux pieds des plantes déjà signalées dans ma première note et les rapporter chez moi dans le but de prélever pour ma collection quelques spécimens de ces nymphes et de compléter la biologie de ces insectes. Ma déception a été grande le lendemain, lorsqu'en ouvrant ces cocons je constatais que de grosses larves de diptères, douées de mouvements très actifs et précipités, avaient dévoré les nymphes de *Cleonus Saint-Pierrei* dont les dépouilles gisaient au fond des cocons. C'est donc dans ces cocons que ces diptères étaient destinés à subir leurs transformations et le *Cleonus Saint-Pierrei* avait un ennemi parasite dans sa forme larvaire. Sur la paroi des cocons j'ai pu constater la présence d'un petit trou qui avait dû servir à l'introduction de la jeune larve ou œuf déposé par la femelle du diptère. Un exemplaire de ce diptère avait éclos durant le transport, mais malheureusement n'avait pu acquérir tous ses caractères spécifiques. M. Innes Bey, à qui je l'ai remis, a pu recon-

naître toutefois que cet insecte appartenait au genre *Anthrax* et, suivant toutes probabilités, était un *Anthrax griseola* figuré dans Klug. Les nervures de l'aile présentent, en effet, absolument la même disposition que celles figurées pour cette espèce. On savait que les larves des *Anthrax* vivaient aux dépens des nids d'Hyménoptères, mais je ne pense pas qu'on ait signalé jusqu'ici leur présence dans les cocons de coléoptères. Je crois qu'il est de quelque intérêt de donner ici une figure de cette larve (?) curieuse par ses caractères et qui mesure environ 15 millimètres de long ».

The figure given by Mr. Boehm however is that of a Bombyliid pupa and not of a larva.

A concise translation of Fabre's writing (Souvenirs Entomologiques, IIIe sér., VIII, Les *Anthrax*, pp. 129-152, f. 122) is quoted from Sharp's (Cambridge National History, Insecta, pt. II, p. 486) :

« The parent fly (*Argyramoeba* [*Anthrax*] *trifasciata*) oviposits by merely dropping a minute egg while flying over the surface of the mass of masonry by which the grubs of the Mason-bee, *Chalcidroma muraria*, are protected. From this egg there is hatched a minute delicate vermiform larva. In order to obtain its food, it is necessary for this feeble creature to penetrate the masonry; apparently a hopeless task, the animal being scarcely a twentieth of an inch long and very slender.... the frail creature hunts about the surface of the masonry, seeking to find an entrance; frequently it is a long time before it is successful; but though it has never taken any food it is possessed of great powers of endurance.... Finally after greater or less delay, the persevering little larva succeeds in finding some tiny gap in the masonry through which it can force itself.... Having once effected an entrance the organisation that has enabled it to do so is useless; this primary form of the larva, has in fact, as its sole object to enable the creature to penetrate to its food. Having penetrated, it undergoes a complete change of form, and appears as a creature specially fitted for feeding on the quiescent larva of the bee without destroying it. To accomplish this requires an extreme delicacy of organisation and instinct; to bite the prey would be to kill it, and if this were done, the *Anthrax* would, Fabre supposes, ensure its own death, for it cannot feed on the dead and putrefying grub; accordingly, the part of its body that does duty as a mouth is merely a delicate sucker which it applies to the skin of the *Chalcidroma* grub; and thus without inflicting any perceptible wound it sucks day after day, changing its position frequently, until it has completely emptied the pupa of its contents, nothing being left but the skin. Thus this species, appears in four consecutive forms — in addition to the egg — each of which is highly specialised for the purpose of existence in that stage ».

According to Lundbeck, the larvae of *Bombyliidae* (Pl. I, figs. 2a,

2b, and 2c) are « cylindrical or somewhat flattened; the body consists of thirteen segments; the head is small, retractile; the mouth-parts consist of a medium labrum, knife-shaped, compressed, often somewhat serrated mandibles and larger and broader maxillae with a palpus; the mandibles and maxillae are movable up and down. Small antennal papillae are present. There are no eyes. The larvae are amphipneustic with spiracles on prothorax and on the penultimate segment. The pupae (Pl. I, fig. 3) are free; they have characteristically arranged spines on the head at the base and at the end of the antennal sheaths; the abdominal segments on the dorsal line are armed with characteristic chitinous hooklets, formed as small staves or more or less semi-circular; moreover there are some spines at the apex of the body, and the abdominal segments have girdles of shorter or longer bristles or hairs. The pupa has prothoracic and seven pairs of abdominal spiracles ». The actual process of oviposition has been observed only twice; A. Chapman (1878, *Entom. Month. Mag.*, 196) watched and saw a small *Bombylius* on the wing which approached the ground within an inch or so and then jerk its eggs singly on the ground. E. Séguy and E. Baudot (1922, *Bull. Soc. Entom. France*, 139-141, figs. 1-8) have published the following very important and interesting note on the early stages of *Bombylius vulpinus* Wied. [*apud* Meig.] (*fugax* Wied.) :

« Le *Bombylius fugax* Wied. est un des parasites du *Panurgus dentipes* Latr. Au mois d'août dernier l'un de nous a recueilli la ponte du Bombyle et a trouvé ensuite plusieurs nids de *Panurgus* occupés par la larve adulte du Diptère. Le but de la présente note est de préciser certains points du cycle évolutif de la mouche parasite et d'exposer rapidement le résultat de quelques observations.

Nous avons observé le *Bombylius fugax* à Bar-le-Duc (500 m. du nord-est du cimetière) sur une côte en terrain calcaire du Barrois, à l'emplacement d'une carrière à cailloux. Fin juin, le Diptère rôde autour des colonies de *Panurgus*; ceux-ci entrent en activité dans les premiers jours de juillet et on peut voir alors les Bombyles voltigeant d'une entrée du nid à l'autre. De temps à autre ils se rapprochent brusquement d'un orifice, en recourbant l'abdomen vers le trou pour y projeter un œuf. Cette manœuvre peut être répétée jusqu'à six fois auprès du même nid; suivant la disposition plus ou moins favorable de ces derniers, les œufs roulent dans le conduit ou restent sur le sol avoisinant. C'est là que nous avons pu en recueillir plusieurs les 7 et 11 juillet 1921.

L'œuf du *Bombylius fugax* mesure exactement 1 millimètre de long sur un quart de millimètre de large (Pl. I, fig. 4a); il n'est enveloppé par aucune matière visqueuse et n'adhère pas aux corps sur lesquels il a été déposé. D'un blanc nacré aussitôt après la ponte, il devient rapidement

d'un blanc jaunâtre; la coque est mince, transparente et permet de voir tous les stades de l'évolution de l'embryon; absolument lisse, elle ne porte pas de tubercules polaires ou de plages micropylaires. A défaut de ces organes, les échanges gazeux doivent s'effectuer à travers la coque de l'œuf. L'éclosion se produit entre le 8e et le 12e jour après la ponte. Sous la pression du corps de la larve, la coque se déchire au voisinage du pôle céphalique qui s'écarte comme le couvercle d'une boîte, et une autre grande déchirure longitudinale, qui se produit sur la face ventrale, libère la jeune larve. Celle-ci ressemble parfaitement à la larve déjà décrite par Nielsen et qu'il rapporte au *Bombylius minor*; elle présente aussi beaucoup d'analogie avec les larves du groupe des *Omphrale* ou des *Thereva*. C'est un petit ver helminthoïde qui, en extension sur le porte-objet, mesure 1,5 mm. à 1,75 mm. (Pl. I, fig. 4b); il ne présente pas d'appareil d'éclosion apparent. Les soies caudales sont très longues et la capsule céphalique, qui s'observe chez les larves des genres voisins, est remplacée ici par deux paires de forts crochets mobiles, articulés sur une pièce basale assez semblable à celle des Muscides. Les organes sensoriels (a) sont bien développés et accompagnés de huit paires de soies. Nous n'avons pas observé les stigmates antérieurs ou thoraciques, qui sont bien développés chez les larves des groupes voisins; au contraire, les stigmates postérieurs sont bien visibles sur leurs petites protubérances (Pl. I, fig. 4b, s).

La larve qui vient d'éclore est très vive et se déplace avec agilité; aussitôt après l'éclosion, elle se rend dans la loge en forme d'olive où elle rencontrera la larve du *Panurgus*, sur sa boulette de pollen; chaque loge ne contient qu'une larve de Bombyle ou une larve de *Panurgus*.

Nous n'avons pas pu déterminer avec précision le régime de la larve du premier âge, la durée de cette période larvaire étant trop courte chez cette espèce pour se prêter à l'observation. Mais dès le deuxième âge, qui survient 30-50 heures après l'éclosion, les habitudes parasitaires apparaissent et la larve du Bombyle, collée au flanc de celle du *Panurgus*, vit alors aux dépens de celle-ci.

A ce stade, la larve parasite présente une forme nettement melolonthoïde (Pl. I, fig. 4c). Le corps est dur, la peau est très épaisse, lisse, glabre et sans ornements, sauf trois paires de soies thoraciques, microscopiques, et deux paires de stigmates : une paire antérieure et une postérieure, assez semblables à ceux que l'on observe chez les Mouches supérieures (Pl. I, fig. 4d). Les organes sensoriels et les crochets buccaux présentent les mêmes pièces que chez la larve du premier âge, mais considérablement renforcées (Pl. I, fig. 4e).

La nymphe est semblable à première vue à celle de *Bombylius minor* de Nielsen. Elle en diffère par la forme des crochets céphaliques, la disposi-

tion des soies et des épines dorsales. On retrouve aussi, chez la nymphe, des stigmates thoraciques semblables à ceux de la larve melolonthoïde. Les stigmates postérieures ont disparu (fig. 7).

Aucune donnée précise n'a été recueillie sur la délimitation des différents âges et sur leur durée. Comme chez les *Anthrax* et l'*Asilus barbarus*, nous n'avons pas observé les mues qui permettent de séparer entre elles les différentes périodes larvaires et ces dernières du stade nymphal. Toutefois la durée totale cycle, depuis la ponte de l'œuf jusqu'à l'éclosion de l'adulte est sensiblement égale à 11 ou 12 mois ».

Bezzi (1924, The Bombyliidae of the Ethiopian Region, pp. 10-12) gives the following extremely useful, summarized account of what was known as to the larval stages in Bombyliidae :

« 1. *Bombyliinae* : *Bombylius* occurs in nests of solitary bees of the genera *Andrena*, *Colletes* and *Halictus*. *Systoechus* and *Anastoechus* are parasitic in egg-cases of locusts of the genera *Oedipoda*, *Dociostaurus*, *Calliptamus*, etc.. *Sparnopolius* is parasitic on larvae of Coleoptera Lamellicornia (*Lachnosterna*).

2. *Cythereinae* : *Cytherea* and *Callistoma* parasitise the egg-cases of locusts of the genera *Calliptamus*, *Dociostaurus*, etc.

3. *Phthiriinae* : *Geron* is parasitic in Lepidopterous larvae of the genera *Nephopteryx* and *Fumea*.

4. *Systropinae* : *Systropus* is parasitic on Lepidoptera of the family Limacodidae.

5. *Toxophorinae* : *Toxophora* occurs in the nests of solitary wasps, such as *Eumenes*, *Pelopoeus* and *Odynerus*.

6. *Lomatinae* : *Aphoebantus* is parasitic in the egg-cases of locusts, like *Calliptamus*, etc.

7. *Anthrucinae* : *Anthrax* is parasitic on larvae of solitary bees, such as *Osmia*, *Podalirius* and *Megachile*, and on those of solitary and fossorial wasps, like *Odynerus*, *Hoplomerus*, *Cemonus* and *Trypoxylon*. *Spongostylum* is probably parasitic on bees (*Osmia*, *Chalicodoma*, *Megachile*, *Xylocopa*), wasps (*Pelopaeus*, *Cemonus*) and beetles (*Cicindela*).

8. *Eroprosopinae* : *Hemipenthes* is a hyperparasite of parasitic Hymenoptera (*Ophion*, *Banchus*), and of parasitic Diptera (*Masicera*) living at the expense of nocturnal Lepidoptera. Species of *Villa*, of the *flava*-group, are parasites of nocturnal Lepidoptera of the genera *Mamestra*, *Panolis*, *Agrotis*, *Dichromia*, *Taeniocampa*, etc., while those of the *ixion*-group, like *pygarga* Lw., are parasitic on Coleopterous larvae of the family Tenebrionidae (*Podonta nigrita* F.). *Thyridanthrax* is parasitic in egg-cases of locusts of the genera *Stauronotus* and *Arcyptera*; or in Dipterous puparia of the genus *Glossina*. *Chrysanthrax* is a hyperparasite of Scoliid wasps of the genus *Elis*, parasitic

on larvae of Lamellicorn Coleoptera.... It is noteworthy that the habit of preying upon the egg-masses of locusts is characteristic of the entire family, occurring in not fewer than four subfamilies (*Bombyliinae*, *Cythereinae*, *Lomatiinae* and *Exoprosopinae*). Moreover, it is very curious to find that all the species exhibiting this habit present a certain similarity in general appearance, as may be seen on comparing an *Anastoechus* with a *Cytherca*, an *Aphoebantus* or a *Thyridanthrax*. But habits seem to vary even in the same restricted genus, as shown by *Thyridanthrax*, *Villa* or *Spongostylum* ».

Uvarov (1928, Locusts and Grasshoppers, London) on the subject of parasitism of Acrididae by Bombyliids writes :

« Oviposition in the species that parasitise *Acrididae* has never been observed, but in other species the female simply flies very low over the ground and from time to time nearly touches it, each time dropping an egg. The first larva emerging from the egg is also known only in the species that are not connected with *Acrididae*; it is very small, and provided with three pairs of bristles instead of legs, by means of which it can move very rapidly and find its food; this larva clearly corresponds to the triungulins of *Mylabris* and *Epicauta*.

Finding the egg-pod does not seem always to be an easy task, since in *Systoechus autumnalis* many of the larvae are usually unable to do so in autumn when they hatch, but have to hibernate in the soil and resume their quest next spring (Portschinsky, 1895).

After entering the pod, the larva moults, and reaches (perhaps after two moults) a stage that is well known, because it is commonly found in the pods when samples are taken from breeding-places in autumn and spring. The larva in this stage is a yellowish, clumsy creature, without any trace of legs, eyes, or antennae, but with black-pointed chitinous mandibles. The absence of the legs enables a Bombyliid larva to be distinguished from that of *Mylabris* or *Epicauta*.

As stated above, the larva hibernates in the pod, continuing next spring to feed on the eggs and only pupating in late spring. The pupa has a very peculiar appearance owing to the presence of several pairs of strong spines on its head and of transverse rows of small spinules and bristles on the abdominal segments. The significance of these structures becomes clear when the adult fly starts emerging from the pupa; the pupa forces its way to the surface of the ground with its head, while the abdominal spines ensure a firm support. When the pupa reaches the surface and even protrudes a little beyond it, its skin bursts on the back and the adult fly emerges; the latter is such a fragile creature that it would be utterly impossible for it to overcome even the feeblest obstacles.

The data at our disposal enable us to state that the larvae of Bombyliids

probably do not destroy more than the contents of one egg-pod each. Moreover my own observations show that they often are not fully successful even in that; I have several times seen a larva that had eaten only a few eggs in a pod, when the remainder were already hatching. This proves that the usual estimation of percentage of destruction of eggs by calculating the percentage of the egg-pods containing larvae may give a very incorrect idea of the actual state of things. Apart from this, there are reasons for supposing that some Bombyliids do not live in the larval stage exclusively on Acridid eggs, but possibly feed on roots and other vegetable matter as well (La Baume, 1918).

The same author gives also the following useful List of Bombyliids parasitising the egg-pods of *Acrididae*:

Thyridanthrax fenestratus Fall. : *Dociostaurus maroccanus*, *Ocnérides*, Algeria (Künckel d'Herculais, J.P.A., 1893-1905 : Invasion des Acridiens, vulgo Sauterelles, en Algérie, 34 pls., maps, tables); *Arcyptera microptera*, Siberia (Bezrukov, J.G., 1922 : A brief report on the work of the Omsk laboratory of the Siber. Entom. Bureau in 1919-1922 (in Russian) [*Izv. Sibirsk. Ent. Byuro*, 1, 26-30]).

Thyridanthrax perspicularis Lw. : *Arcyptera microptera*, Siberia (Troitsky, D., 1914 : Acridid pests in the Semipalatinsk province in 1912 (in Russian) [*Nuzhnyi Zapad.-Sibirsk. Selsk. Khoz.*, 2, No. 1, 23-49]).

Spongostylum (Argyramoeba) isis Meig. : *Dociostaurus maroccanus*, Syria (La Baume, 1918, Bücher, H. : Die Heuschreckenplage und ihre Bekämpfung (Unter Mitwirkung von V. Bauer, G. Bredemann, E. Fickendey, W. La Baume und G. Loag) [*Monog. angew. Ent.*, Berlin, 3, 274 pp., 33 figs., 20 pls., maps]).

Callostoma (Callistoma) fascipenne Macq. : *Dociostaurus maroccanus*, Anatolia (Calvert, 1881, figs.; La Baume, 1918, loc. cit., bionomics, figs.).

Callostoma (Callistoma) desertorum Lw. : Probably *Dociostaurus maroccanus*, Turkestan (Portschinsky, 1894 : On the grasshoppers damaging crops and grasses in the Perm, Tobolsk and Orenburg provinces (in Russian) [*Dept. Agric. St. Petersburg*, 131 pp., 65 figs.]).

Cytherea (Mulio) obscura Meig. : *Dociostaurus maroccanus*, Crimea (Stepanov, 1881 : On the metamorph. in Dipt. of the Fam. Bombyl. (in Russian) [*Trud. Obshch. Est. Imp. Kharkov. Univ.*, 15, reprint, 9 pp., 1 pl.]); Sicily (De Stefani Perez, T., 1913 : Cavalette, loro invasione e lotta contro di esse in Sicilia [*Giorn. Sci. nat. econ. Palermo*, 30, 117-1199, 21 figs.]).

Anaestoechus nitidulus F. : *Dociostaurus maroccanus*, Transcaucasia (Stepanov, 1882 : A note on the parasites of *Staurotonotus vastator* Stev.

(in Russian) [*op. c.* 16, reprint, 3 pp.]; (Shimkevitch, V., 1884 : The problem of transformation of Diptera parasitic in the cocoons of locusts (in Russian) [*Horae Soc. Ent. Ross.* 18, 11-16]); Portugal (De Seabra, A.F., 1901 : As invasoes de gafanhotos em Portugal [*Arch. Rural*, Lisbon, reprint, 5 pp., 1 pl.]); *Locusta migratoria*, Astrachan (Sacharov, N.L., 1913 : Report on the activity of the Entom. Station in 1912, Astrakhan, 25 pp.); *Gomphocerus sibiricus* and *Chorthippus scalaris*, Siberia (Troitsky, D., 1914, *op. c.*); *Arcyptera microptera*, W. Siberia (Moritz, 1915); *Calliptamus italicus*, Siberia (Bezrukov, J.G., 1922, *op. c.*).

Systoechus autumnalis Pall. : *Doclostaurus maroccanus*, Crimea (Stepanov, 1881, *op. c.*); various grasshoppers, Eastern Siberia (Ingensitsky, I. V., 1898 : On the Acrid. of Eastern Siberia and their parasites (in Russian) [*Horae Soc. Ent. Ross.*, 32, p. Liii]); *Chorthippus scalaris*, *Gomphocerus sibiricus*, Siberia (Troitsky, D., 1914, *op. c.*); *Ancyptera microptera*, *Doclostaurus kraussi*, *D. albicornis*, W. Siberia (Vorontsovsky, D., 1926 : New cases of parasitism in Acrididae (in Russian) [*La Défense des Plantes*, Leningrad, 3, 280]).

Systoechus ctenopterus Mikan. : *Gomphocerus sibiricus*, *Chorthippus scalaris*, Siberia (Bezrukov, 1922, *op. c.*).

Systoechus leucophaeus Meig. ? : *Doclostaurus maroccanus*, Crimea (Stepanov, 1881, *op. c.*); *Calliptamus italicus*, Russia (Lindeman, 1902). — Specific determination in both records doubtful.

Systoechus oreas Ost.-Sack. : *Camnula pellucida* and other grasshoppers, British Columbia (Traherne, R.C., and Buckell, E. R., 1924 : Grasshoppers of British Columbia [*Bull. Dept. Agric. Canada*, No. 39 (Ent. Bull. 26), 40 pp., 18 figs., 3 pls.]); *Camnula pellucida*, California (Riley, C.V., 1880, U. S. Ent. Commission, 2nd Report, 322 pp., 19 figs., 16 pls., 6 maps).

Systoechus socius Walk. : *Colemania sphenarioides*, S. India (Fletcher, T.B., 1916 : One hundred notes on Indian insects [*Bull. Agric. Inst. Pusa*, 59, 17 pp.]).

Systoechus vulgaris Lw. : *Camnula pellucida*, British Columbia (Traherne and Buckell, 1924, *op. c.*).

Systoechus sp. : *Doclostaurus maroccanus*, Transcaucasia; *Locusta migratoria*, Astrachan (Portschinsky, 1894, *op. c.*).

Aphoebantus (Triodites) mus Ost.-Sack. : *Camnula pellucida*, California (Riley, 1880, *op. c.*).

All the above feed directly on the eggs of the respective species of Acrididae, but there is one species, *Argyrotaeoba zonabripilaga* Portch., which occurs also in the egg-pods, but feeds not on the eggs, but on the larvae of other Bombyliids and of *Mylabris* (Portschinsky, I.A., 1895 :

On the grasshoppers damaging crops and grasses in the Perm, Tobolsk and Orenburg provinces. Parasites of grasshoppers (the end). The Steppe or Russian grasshopper (in Russian) [Dept. Agric. St. Petersburg, 32 pp.]; Troitsky, 1914, *op.c.*). The larva of this fly is similar to that of *Anthrax fenestratus*, but differs from the larvae of all Bombyliids by the presence of a round sucker on the posterior end of its body; by means of this, the larva attaches itself to its victim and then sucks it out through the mouth. It is not impossible that some other species of Bombyliids, recorded as bred from egg-pods, are also secondary parasites.

I have frequently observed females of Bombyliids (*Bombylius flavipes*, *B. modestus*, *Anastoechus exalbidus*, *Geron* spp., *Stomylomyia europaea* and *Petrorossia letho*, etc.) hovering over bare sandy ground sometimes containing burrows of small Hymenoptera; they were hovering from ten to thirty centimetres above the surface of the ground, and every now and again gave a sort of « flick » by bringing the end of their abdomen round under the thorax, which gave one the impression that at each of these « jerks » or « flicks » the flies were dropping or throwing an egg. My attempts however at finding any eggs have never been successful.

The adults of *Bombylius* and many closely allied genera are magnificent hoverers in sunshine and are capable of evading the quickest strokes of a net and then boldly renewing their hovering in almost the same spot. Many Egyptian Bombyliidae, especially among the *Exoprosopinae*, in which the general colouration is sandy, tawny-olive or of a dirty yellowish-grey colour, harmonise so perfectly with the soil that, such species, when at rest and motionless, are usually difficult to see. On the other hand other species such as *Defilippia Mayeti* Big. and *Exoprosopa Tewfiki* Param. are of a deep coal black colour, and, like certain Tenebrionid beetles (*Pimelia*, *Adesmia*, etc.) often met with in our Deserts, when seen against the light (sandy) black ground are equally conspicuous both at rest and in motion.

Arrangement and Distribution

The systematic arrangement of the *Bombyliidae* still awaits a competent monographer, in spite of the praiseworthy attempts of Becker and Bezzi to subdivide the family into a number of natural subfamilies. However the limits of some of these subfamilies are by no means well defined, the allocation of various genera being open to doubt, and Bezzi himself admitted that the thirteen subfamilies accepted by him « are to be considered as artificial », as « intermediate forms are of frequent occurrence ». Engel is not in agreement with Bezzi as to the position of certain genera and he has for the most part omitted subfamilies except where there

was a complete agreement in opinion between Becker and Bezzi. I have followed Bezzi's arrangement in the present volume and accepted his subfamilies because I consider like him that « in the present state of our knowledge they may be useful for practical purposes », except in the case where he proposes to combine the *Conophorinae* with the *Bombyliinae*; this appears to be most unnatural as the prominent occiput, in the *Conophorinae* shows close affinities to the *Cyleniinae*, while their antennae and other characters almost claim subfamily rank. The most natural arrangement appears to be arrived at by beginning with those genera which are most allied to the *Cyrtidae* both by their shape and their reduced venation, and consequently the *Cyrtosinae*, commencing with *Empidideicus*, *Leylaiya*, *Cyrtosia*, etc., would be the first subfamily. The *Anthracinae* and *Euxopropinae* being the most distinct subfamilies would come last, and would naturally be preceded by the *Lomatiinae*, but the positions of the *Toxophorinae* and the *Cyleniinae* are by no means so obvious, although the absence of the costa beyond the apex of the wing in the *Phthiriinae* and *Toxophora* may afford some clues to affinities. The position of the *Mario-bezziinae*, with the profile of the head so much like that of the *Conopidae* is also obscure, and I hesitate to place it in the position of the more primitive ancestors of the family. *Usia* appears to be obviously connected to *Bombylius* by *Legnotomyia*. *Cytherea* connects the *Bombyliidae* *Homoeophthalmae* with the *Tomophthalmae* and *Aphoebantus* connects the *Lomatiinae* with the *Anthracinae*, but *Efflatounia*, although closely related to *Dischistus*, should belong to the *Tomophthalmae* owing to the evident indentation on the posterior border of the eyes. (Pl. I, figs. 5a, 5b, and 5c). After proposing the name *Bombyliidae Homoeophthalmae* for the section in which the eyes are simple, that is, not indented on the hind border (even if bisected by the different form of the facets); and the designation *Bombyliidae Tomophthalmae* for the section in which the eyes are indented, and often have the beginning of a bisecting line Bezzi (1924, *Bombyliidae* of the Ethiopian Region, pp. 8-9) writes : « These two groups are to be considered as the two main branches of the family. They have originated from simple-eyed and simple-headed forms, which are, geologically speaking, the most ancient. According to Handlirsch (*Die fossilen Insekten und die Phylogenie der rezenten Formen*, Leipzig, 1906-1908), *Toxophora* and *Systropus* are two very old stems, the latter of which, with its concave occiput, is the type of the *Homoeophthalma*-series, while the former, with its convex occiput is the type of the *Tomophthalma*-series. Cockerell's observations (*The Fossil and Recent Bombyliidae Compared* [*Bull. Amer. Mus. of Nat. Hist.*, Vol. XXXIII, pp. 229-236, 1914) show that the *Homoeophthalmae* comprise the more ancient forms, which are chiefly of Old World origin.

Cytherea and its allies, which have the appearance and habits of *Exoprosopinae*, with which they are united by most writers, are located by their simple eyes in the *Homocophthalma*-series, near the *Bombyliinae*. The venational character of the short or long praefurca, to which the first place is assigned by Becker and by Cockerell, is of secondary value. But in the *Tomophthalma*-series, a long praefurca is typical, while a short one is typical for the *Homocophthalma*-series. The *Cylleniinae*, which have simple eyes but a produced occiput, generally also exhibit a long praefurca.

I have accepted the classification proposed by Becker since it is the result of very long study, and is based upon wide knowledge of the family. But I have adapted it to my principle of the character of the eyes, and have reduced the number of the subfamilies by combining the *Conophorinae* with the *Bombyliinae*, moreover I have taken the *Toxophorinae* in a different sense, etc.

A closer acquaintance with the bionomies and ethology of the *Bombyliidae* will perhaps lead to a more natural arrangement of the family.

The geographical distribution of the *Bombyliidae* exhibits certain peculiarities which are worthy of great interest. It is well known that the family belongs more especially to warmer countries and this is emphasised by the fact that the number of species rapidly increases from North to South. Zetterstedt mentions only four species (all *Anthracinae*) as occurring in Lapland; Verrall records nine species in the British Isles and Lundbeck refers to fourteen species from Denmark; Schiner records sixty species from Austria, and Arias 115 from Spain. In 1924, Bezzi (*loc. cit.*, p. 16) brings the number of the described species from the Ethiopian Region to 594, and states that this number is certainly much less than half of the species actually in existence.

The Bombyliid fauna of Egypt, as in the case of that of many other families of Diptera undoubtedly forms a connecting link between the Palaearctic and the Ethiopian Region, because, although a great number of the species are Palaearctic, yet, very numerous forms show evident Ethiopian affinities. Concerning the distribution of this family Bezzi also writes: « The Mediterraneo-Caspian Subregion, of which the subfamilies *Cythereinae*, *Mariobezziinae*, *Usiinae*, *Cyrtosiinae* and *Heterotropinae*, are characteristic, is very rich in *Bombyliidae*. But the Bombyliid fauna of this Subregion is sharply differentiated from that of the Ethiopian Region; and it is very interesting to note that some very characteristic Mediterranean genera, which are well represented in North Africa, are absolutely wanting south of the Sahara (e.g. *Conophorus*, *Prorachthes* [in *Trans. Ent. Soc. London*, 1907, p. 380, an unnamed species of this genus is, however, recorded from Cape Town], *Cytherea*, *Chalcochiton*, *Callistoma*, *Legnotomyia*, *Usia*, *Platypygus*,

Heterotropus, *Oligodranes*, *Cyllenina*, *Amictus*, *Anisotamia*, *Cononedys*, *Stomylomyia*). On the other hand it is interesting to note how the number of peculiar and more characteristic genera of the Ethiopian fauna increases from the centre of the Continent to the South, the more striking forms being exclusively South African (e.g. *Adelidea*, *Corsomyza*, *Callynthrophora*, *Megapalpus*, *Crocidium*, *Apatomyza*, *Peringueyimyia*, *Nomalonia*, *Henica*, *Tomomyza*, and the new genera erected by me). The *Cyleniinae*, with their four peculiar genera are very characteristic ».

No representatives of the genera *Lissomerus*, *Systropus*, *Callostoma* (*Callistoma*), *Eclimus* and *Glabellula* have as yet been met with in Egypt.

KEY TO THE TWO MAIN GROUPS OF BOMBILIIDAE

- I (II) Hind margin of eyes almost always entire and if indented then, the hind border almost always without a distinct bisecting line between the facets; occiput usually not bilobed above and without a central furrow or cavity; antennae usually approximate at the base. Ovipositor often without spines. Wings with the stem of forks R_2+3 and R_4+R_5 usually short .. **BOMBYLIIDAE HOMOEOPHTHALMAE**
- II (I) Hind margin of eyes always distinctly indented; hind border of eyes in both sexes usually with a more or less distinct bisecting line; occiput usually bilobed above with a deep central cavity; antennae almost always widely separated at the base; ovipositor usually with spines; wings with the stem of fork R_2+3 and R_4+R_5 generally long..... **BOMBYLIIDAE TOMOPHTHALMAE**

KEY TO THE SUBFAMILIES OF THE HOMOEOPHTHALMAE

- 1 (16) Occiput flat, or only slightly prominent, not bilobed above, and without a central furrow or cavity; occipital fringe placed near the border of the eyes. Antennae almost always approximate at the base; alula usually present.
- 2 (15) Prothorax not specially developed and not bearing strong, long macrochaetae.
- 3 (6) Tibiae with longitudinal row of well developed spicules; proboscis long, porrect; palpi one-segmented
- 4 (5) Abdomen broad, ovate or rounded in both sexes; antennae approximate at the base **BOMBYLIINAE**
- 5 (4) Abdomen less broad, elongate oval, cylindrical at least in male; antennae widely separated at the base **CYTHEREINAE**

- 6 (3) Tibiae bare or only pilose, without distinct spicules, if minute spicules are distinct, palpi two-segmented; body not, or rarely bristly.
- 7 (8) Face much longer than the frons *MARIOBEZZIINAE*
- 8 (7) Face shorter than, or at least as long as the frons.
- 9 (10) Radial sector reduced to one or at most two veins; 1st M_2 cell sometimes wanting; body usually bare and hump-backed, with black and yellow markings; palpi vestigial, one-segmented; very small species *CYRTOSIINAE*
- 10 (9) Radial sector with two branches; 1st M_2 always present.
- 11 (14) Abdomen narrow and elongate.
- 12 (13) 1st M_2 cell broadened at end, almost hexagonal, much broader than 2nd M_2 cell; eyes in the male bisected *HETEROTROPINAE*
- 13 (12) 1st M_2 cell not broadened at end and not broader than 2nd M_2 cell; eyes in the male with the upper facets not enlarged *PHTHIRIINAE*
- 14 (11) Abdomen, at least in female broad and flattened *USIINAE*
- 15 (2) Prothorax well developed, in the shape of an anterior ring, bearing strong, long macrochaetae *TOXOPHORINAE*
- 16 (1) Occiput prominent, bilobate above with a central furrow or cavity; occipital fringe, if present, placed on the borders of the cavity, in any case far distant from the hind borders of the eyes; alula absent or at most weakly developed.
- 17 (18) Antennae inserted on a more or less large prominence and with the first and third segments entirely different in shape to those of *Bombylius*; alula, at most very weakly developed... *CONOPHORINAE*
- 18 (17) Antennae inserted on the feebly raised lower margin of the frons and of the usual *Bombylius*-like shape; alula obsolete *CYLLENIINAE*

KEY TO THE GENERA
OF THE BOMBYLIIDAE HOMOEOPHTHALMAE

- 1 (46) Hind margin of eyes never indented, entire, or very rarely with a deep sinuosity and sometimes with a median cavity or furrow; eyes destitute of a bisecting line, or such division if present, due to the larger size of the upper facets.
- 2 (38) Occiput flat or only very slightly prominent, not bilobed above and without a central furrow or cavity; occipital fringe placed near the border of the eyes.
- 3 (45) Prothorax not specially developed and not bearing long, strong macrochaetae.

- 4 (15) Tibiae with longitudinal rows of well developed spicules.
- 5 (14) Abdomen broad, more or less ovate; antennae usually approximate at the base.
- 6 (13) R_5 cell closed; basal costal comb of wings usually well developed; metapleura usually hairy.
- 7 (10) R cell longer than 2nd M cell.
- 8 (9) Antennae approximate at the base with the first segment cylindrical and not broader than the second segment; ventral surface of hind femora always with bristles; vein forming the upper margin of 1st M_2 cell and vein M_1 almost straight **Bombylius L.**
- 9 (8) Antennae, though near together, with an appreciable interval between their bases and with the first segment somewhat broader than the second (sometimes much broader); ventral surface of hind femora usually hairy, at most with a few bristles near the apex; vein forming the upper margin of 1st M_2 cell and vein M_1 forming (together) an obtuse angle **Acanthogeron BEZZI**
- 10 (7) R and 2nd M cells of equal length.
- 11 (12) Face prominent, moderately hairy; 1st M_2 cell shaped as in *Bombylius*; frons of male narrow **Systoeus LW.**
- 12 (11) Face rounded and densely hairy; 1st M_2 cell very obtuse at the end; frons of male rather broad **Anastoechus OST.-SACK.**
- 13 (6) R_5 cell open; wings with no distinct basal costal comb **Dischistus LW.**
- 14 (5) Abdomen elongate, more or less cylindrical, at least in the male; antennae wide apart at the base **Cytherea F.**
- 15 (4) Tibiae bare or only hairy, without readily perceptible spicules or, if minute spicules are distinct, the palpi are two segmented; body not bristly.
- 16 (37) Face shorter than, or at most as long as the frons (from the ocellar tubercle to the base of the antennae).
- 17 (20) Radial sector not forked ($R_2 +_5$).
- 18 (19) Third antennal segment oval or pyriform with a comparatively well developed cylindrical style; the two branches of M_1 fork of equal strength **Empidideicus BECK.**
- 19 (18) Third antennal segment broad oval or pyriform with the style so minute that almost inexistant; upper branch of M_1 fork very weak, almost effaced **Leylaiya NOV. GEN.**
- 20 (17) Radial sector forked.
- 21 (22) Third segment of antennae more or less compressed, broad-elongate with a short upturned apex, bearing no style but a microscopic rod in a dorsal sub-apical pit; 1st M_2 cell present **Apolysis LW.**

- 22 (21) Third segment of antennae elongate ovate with a relatively thick apical style; 1st M_2 cell absent; costa continued along the hind margin of wing **Cyrtosia PERRIS**
- 23 (34) Abdomen narrow and elongate.
- 24 (25) Third antennal segment ending by a spine-shaped dorsal process beneath which a pit is present, bearing a minute rod **Phthiria MEIG.**
- 25 (24) Third antennal segment more or less acute at end, with the style (more or less small) never occupying a dorsal position.
- 26 (33) 1st A cell closed before the wing margin.
- 27 (28) Costa not continued beyond the apex of the wing (a little after the tip of vein R_5); veins M_1 and M_2 originating from a common stem on the distal end of 1st M_2 cell **Alloxytropus BEZZI**
- 28 (27) Costa continued on hind margin of wing, at least to apex of 1st A cell; veins M_1 and M_2 emitted separately on the distal end of 1st M_2 cell.
- 29 (32) Vein M_1 almost straight; its last section or portion shorter than, or at most as long as the length of 1st M cell ... **Heterotropus LW.**
- 30 (31) Fork R_4+R_5 wide open, consequently vein R_5 is distinctly shorter than vein R_4 ; usually long densely hairy or furry flies **Geron MEIG.**
- 31 (30) Fork R_4+R_5 not very wide open and veins R_4 and R_5 of almost equivalent length; short pubescent or almost bare flies.
- 32 (29) Vein M_1 convex, its last section deeply bent down and much longer than the length of 1st M_2 cell **Crocidium LW.**
- 33 (26) 1st A cell open at the margin **Platypygus LW.**
- 34 (23) Abdomen broad and flattened.
- 35 (36) Apex of R_4 cell (measured on the costa) narrower than that of R_3 cell, owing to veins R_4 and R_5 being almost of equal length; 1st M_2 cell narrow, elongate and emitting two veins to the wing margin (three posterior cells present : R_5 , 2nd M_2 and Cu_1); 1st A cell closed before the margin and with an appendix **Usia LATR.**
- 36 (35) Apex of R_4 cell much wider than that of R_3 cell, owing to vein R_5 being much shorter than vein R_4 (one third to one half); 1st M_2 cell short, broad and emitting three veins to the wing-margin (four posterior cells present : R_5 , 2nd M_2 , M_3 and Cu_1); 1st A cell open at the margin **Legnotomyia BEZZI**
- 37 (16) Face much longer than the frons (from ocellar tubercle to base of antennae) **Mariobezzia BECK.**
- 38 (2) Occiput prominent, bilobate above, with a more or less deep central furrow or cavity.

- 39 (42) Antennae inserted on a more or less large prominence and with the first and third segments very different in shape to those of *Bombylius*; alula obsolete or at most feebly developed (*Conophorinae*).
- 40 (41) Antennae longer than the length of the head, with the first segment remarkably swollen, barrel-shaped and longer than the second and third segments together; third segment more or less spindle shaped with the style terminal; palpi, in both sexes normal and similar
..... **Conophorus MEIG.**
- 41 (40) Antennae shorter than the length of the head with the first segment of the usual subcylindrical shape and the third broad, laterally compressed, much broader in the female and ending in a narrow somewhat upturned shallow calyx-like pit possessing minute hairs; palpi narrow cylindrical in the male and remarkably swollen or broadened in the female
..... **Prorachthes LW.**
- 42 (39) Antennae inserted on the feebly raised lower margin of the frons and of the usual *Bombylius*-like shape; alula obsolete; palpi of the usual narrow sub-cylindrical shape.
- 43 (44) Proboscis weakly chitinated and as long as, or only somewhat longer than the head; face feebly produced forward into a « beak-like » prolongation which is not longer than the first antennal segment; wings with R_5 cell always open at the margin. **Sinaia BECK.**
- 44 (43) Proboscis strongly chitinated, correct and always much longer than the head, as in *Bombylius*; face conspicuously produced forward into a « beak-like » prolongation which is at least as long as the two first segments of the antennae together; wings with R_5 cell sometimes closed before the margin **Amictus WIED.**
- 45 (3) Prothorax well developed and bearing strong, long macrochaetae; body « hunched-up » owing to abdomen bent downwardly and forming an obtuse angle with the thorax; first segment of antennae very long and slender **Toxophora MEIG.**
- 46 (1) Hind margin of eyes with a well pronounced indentation and bisected (with the upper facets enlarged) (Pl. XXXVIII, figs. 543, 544, 548 and 549); alula absent, pulvilli considerably atrophied, almost obsolete **Efflatounia BEZZI**

LEYLAIYA NOVUM GENUS

Very small to minute flies, allied to *Empididicus* and *Glabellula* but distinguished by the characteristic, very elongate shape of the head and by the apparent absence of the style on the apex of the third antennal segment.

TYPE OF THE GENUS :

ninnermia nov. spec.

Head (Pl. II, figs. 6 and 7) remarkably elongate and somewhat pyriform when seen from above, narrower or much narrower than the thorax and distinctly longer than broad; the head is rounded behind, owing to the very puffed out and bulging occiput (even more so than in *Cyrtosia*) and then produced forward cone-shaped and gradually narrowing down beak-like apically where it terminates by the short and comparatively stout proboscis; frons a little broader above than below (at the base of the antennae) and narrower in the male than in the female; face short but conspicuously produced vertically upwards below, in a short hump-shaped projection (which is the upper border of the mouth-margin), consequently the very short face itself appears deeply concave, almost semi-circular; from this hump-shaped projection the porrect mouth-margin slopes perpendicularly downwards, almost at right angles with the face and frons; genae very narrow, linear; proboscis short, rather stout and about as long as the length of the head (twice as long as the entire mouth-margin); palpi apparently absent; vertex broad and the broad triangle formed by the ocelli (ocellar tubercle) is hardly raised above the level of the former; antennae so much approximated at the base that they touch, as in *Empidideicus* and *Cyrtosia* and consist of a very short, rounded basal segment, a short cylindrical second segment (about twice as long as the first, as in *Empidideicus*) and a long, broad pear-shaped third segment whose apical style is so minute (hardly visible even under high magnification) that it may be termed absent.

Thorax (Pl. II, fig. 8) less deeply humped than in *Empidideicus* and much less so than in *Cyrtosia* and, as in the former, with a very feebly developed pronotum and a short metanotum which is more or less concealed by the broad attachment of the abdomen; the attachment of the head to the thorax is distinctly higher than in the two above mentioned and closely allied genera, being about parallel with the notopleural suture; the humerus and the alar calli are even weaker than in *Empidideicus*.

Wings (Pl. II, fig. 9) with the alula or axillary lobe wanting and with a reduced venation as in *Empidideicus*; the Sc fades away in the cell before reaching the Costa and the latter is strong hardly beyond $R_2 +_5$; the radial sector is reduced to a single fork whose upper branch, vein R_1 joins the C towards the middle of the wing and its lower branch, vein $R_3 +_5$ meets the latter at a short distance before the apex of the wing; the r-m cross-vein is placed in a line almost perpendicular with the point of junction of vein R_1 with the C; the stem of the fork $M_1 +_2$ is effaced or very weak and inconspicuous and its upper branch (M_1) is equally weak; 1st A cell

very narrowed, open or closed at the margin, if vein Cu_2 is present, but the latter may be effaced, and consequently this cell becomes inexistant; squamae fairly well developed with the margin quite bare; halteres as in *Empidideicus* but with the knob somewhat smaller.

Legs and abdomen as in *Empidideicus*.

Leylaiya mimnermia NOV. SPEC.

DIAGNOSIS :

A very small to minute fly usually possessing an entirely orange-yellow body but sometimes the third antennal segment and the dorsum of the thorax are more or less deeply obscured dark brownish.

DESCRIPTION :

♂ : *Head* (Pl. II, figs. 6 and 7) entirely orange yellow or reddish-yellow and bare; proboscis obscure brownish-black; antennae with the two basal segments reddish-yellow; third segment elongate-pyriform, more than twice as long as the two basal segments together and usually obscure brownish dorsally but occasionally entirely blackish.

Thorax (Pl. II, fig. 8) varying considerably from orange yellow to pale citron-yellow with two very narrow admedian, pale yellowish longitudinal lines on the disc, to almost black owing to the three longitudinal black stripes being very broad and occupying most of the superfcy of the disc; in the latter case the median black stripe is shorter but broader than the two admedian stripes and its upper margin is higher, being close to the upper border of the disc, while its lower margin ends parallel with the wing-base; the two side stripes are elongate-conical, their upper and lower margins being situated in a lower position than those of the median stripe, much broader above than below where they end in a rounded point at a short distance from the inner lower angle of the postalar callus; the very sparse, minute (microscopic) pubescence is pale yellowish and may be termed in-existent; pleurae entirely reddish-yellow and bare; scutellum orange to reddish-yellow and almost bare like the scutum.

Wings (Pl. II, fig. 9) hyaline with a pale brownish-yellow venation; halteres more or less dark reddish-yellow.

Legs entirely reddish-yellow but the apical tarsal segments obscured, more or less dark brownish.

Abdomen of a uniform dark brownish-yellow to reddish-yellow colour all over, which colour extends over the entire venter; genitalia minute, hidden and require to be mounted on a slide in order to be studied.

♀ : Very similar to the male but larger and decidedly plumper and the general colour is somewhat darker.

♂ Length of body : 1.1-1.3 mm. ; of proboscis : 0.1-0.3 mm. ; breadth (with wings expanded) : 2.1-2.3 mm.

♀ Length of body : 1.6-1.9 mm. ; of proboscis : 0.5 mm. ; breadth (with wings expanded) : 2.8-3.2 mm.

Ten males and six females are known of this species, all collected in Wadi Rishrash (12-17.6. and 12.7. 1932) and in Wadi Garrareyat (17-20.6. 1932) by my assistant Mohamed Tewfik Effendi. Both localities are close to each other (Wadi Garrareyat being a branch of Wadi Rishrash) and situated at some 50 Kilometers S.E. of Helouan.

EMPIDIDEICUS

(Becker, 1907, *Zeitschr. für syst. Hymen. und Dipt.*, VII, 97)

TYPE OF THE GENUS :

carthaginiensis Beck. (1907).

Very small to minute flies allied to *Cyrtosia* but distinguished from it by the reduced wing venation, the rather well developed style of the antennae, the greatly reduced (almost absent) pronotum and by the short metanotum which is more or less concealed by the broad attachment of the abdomen.

Head usually somewhat ovoid, as broad as the thorax and rarely as long as broad, occiput moderately puffed out above and much more so below where it is often produced somewhat backwards; frons a little broader near the vertex than below where it is more or less excavated in the centre (above the base of the antennae) and when viewed in profile it forms almost an angle of 45° with the face which is about as long as the frons and which is usually more or less produced below, at the upper mouth margin; eyes with the facets of equal size all over, and widely separated in both sexes as in the genera *Leylaiya* and *Cyrtosia*; genae very narrow, linear; proboscis usually stout about the base but varying in position, shape and length; palpi apparently absent; vertex broad and the ocelli which are placed on about the same level (the ocellar tubercle being almost inexistant) usually form a very wide triangle and occasionally the median ocellus is almost in a straight line with the lateral ocelli; antennae very approximated at the base and, as in *Cyrtosia*, consist of a very short basal segment, a short second segment and a rounded-oval or pyriform third segment bearing a more or less short apical style which appears somewhat thick owing to the presence of dense microscopic pubescence; the style itself bears apically a short, stiff, whitish microscopic hair.

Thorax less deeply hump-backed than in *Cyrtosia* but more so than in *Leylaiya* and as in the latter with a very feebly developed pronotum and a short metanotum which is more or less concealed by the broad attachment of the abdomen; the attachment of the head to the thorax is distinctly lower than in *Leylaiya* but higher than in *Cyrtosia*, being a little below the notopleural suture; the humerus and the alar calli are weaker than in *Cyrtosia*; the pubescence is practically inexistant and in the pleurae the meso- and sternopleura are the largest.

Wings with the alula or axillary lobe always absent and with a remarkably reduced venation as in *Leylaiya*; the Sc fades away in the Sc cell before reaching the Costa and the latter is strong a little beyond the apex of vein R_2+5 ; the radial sector is reduced to a single fork, whose upper branch vein R_1 , reaches the Costa towards the middle and its lower branch, vein R_2+5 , meets the latter a little before the apex of the wing; the r-m cross-vein is placed at a distance which is a little (but distinctly so) nearer the base of the wing (than the apex); the stem of the fork M_1+2 is usually effaced and inexistant, but it may be extremely weak and hardly distinguishable; the veins M_1 and M_2 of equal strength; vein Cu_2 is usually the last vein near the base, reaching the posterior margin so that the 1st A cell is absent; squamae small, with a very feebly rounded margin and the latter is quite bare; stalk of halteres comparatively short but the knob is large.

Legs moderately weak but not particularly short, with long coxae as in *Cyrtosia* and *Leylaiya*, the middle coxae being shorter than the front and hind pairs; claws and pulvilli present and the latter usually somewhat longer than the claws.

Abdomen broad at the base, often broader than the thorax and conical or ovate in shape with six to seven apparent segments; the genitalia are so much concealed in dried specimens that it is often quite impossible to distinguish even between the sexes.

Bezzi (1926, *Bull. Soc. R. Entom. d'Egypte*, 1925, 253) was the first author who separated this genus from *Cyrtosia*, since Becker (1907, *loc. cit.*) himself had failed to recognize the genus as he had placed several species of *Cyrtosia* within it. Moreover, Bezzi, prior to my despatch to him, of our Egyptian material for study, was of the opinion that *Empidideicus* should be amalgamated to *Cyrtosia*. Consequently however he established the separation of the two genera by the following words: « On remarquera ma nouvelle interprétation du genre *Empidideicus*, car les caractères de la direction de la trompe et de la forme des antennes ne suffisent pas à le distinguer de *Cyrtosia*. Je place dans le genre *Empidideicus* les espèces qui présentent la plus grande réduction des nervures alaires, c'est-à-

dire qui manquent complètement de la deuxième nervure longitudinale et de la côte le long du bord postérieur de l'aile; les autres espèces, avec nervation plus complète, je les laisse dans le genre *Cyrtosia*, ou devra se placer mon *Empidideicus nubilus* du travail précédent, p. 188 ». In his Table of the *Cyrtosiinae* from the Old World, Bezzi on the same and following pages of the above work gives five species as belonging to *Empidideicus* but only two of these are true members of this genus, *carthaginiensis* Beck. and *hungaricus* Thalh., the other three *Beckeri* Bez., *mellus* Bez., and *completus* Bez. have been erroneously incorporated with the present genus.

Three species are so far known from Egypt, *carthaginiensis* Beck., *Efflatouni* Eng. and *mariouti* nov. spec.

Nothing is known concerning the bionomics of this group but the adults, like their closely allied species of *Cyrtosia* frequent desert flowers on and inside which they are often captured in great numbers.

TABLE OF SPECIES

- 1 (2) Frons pale yellow to whitish; middle ocellus in an almost straight line with the lateral ocelli; two basal segments of antennae and style of third segment yellow to reddish-yellow with the third segment only blackish; thorax pale yellowish-white with the three blackish longitudinal stripes on the dorsum very broad, completely united to each other except on the lower third, the side stripes being shorter above and the middle stripe extending from the upper to the lower margin of the disc; wings with a very pale yellowish ill-defined venation **Efflatouni ENG.**
- 2 (1) Frons more or less dark brownish-yellow to blackish; middle ocellus placed in front and not almost in a straight line with the lateral ocelli; antennae all blackish; thorax yellow with the dark longitudinal stripes on the dorsum absent or very indistinct and in which case, never united to each other; wings with a well marked blackish brown venation.
- 3 (4) Dorsum of thorax dull velvety blackish-brown with the three darker longitudinal stripes extremely ill-defined or absent; femora dark brown to blackish and reddish-yellow about the apex **carthaginiensis BECK.**
- 4 (3) Dorsum of thorax chamois to honey-yellow with the three darker longitudinal lines on the disc blackish-brown and fairly distinct, the side stripes being shorter above, as usual, and the median stripe extending from the upper margin to about parallel with the wing base, and sometimes divided above, by a narrow pale line; femora entirely yellow **mariouti NOV. SPEC.**

Empidideicus carthaginiensis BECK.

Becker (1907), *Zeitschr. f. syst. Hymen. u. Dipt.*, VII, 98, 175; Bezzi (1926), *Bull. Soc. R. Entom. d'Egypte*, 1925, 253-254; Engel (1937) in Lindner, *Flieg. Pal. Region*, 25, Bombyl., 101, f. 46, T. III. f. 27; Austen (1937), *Bombyl. of Palestine*, 62, 48.

DIAGNOSIS :

A very small fly with blackish antennae, dark brownish-yellow frons and yellow face, easily distinguished by the blackish femora which are yellow about the apex and by the dark velvety blackish-brown dorsum of the thorax on which the longitudinal stripes are very indistinct and often absent.

DESCRIPTION :

♂ : *Head* (Pl. II, figs. 10, 11 and 12) blackish all over the back, from the upper third of the frons, the vertex and occiput; frons varying somewhat from all blackish to yellowish-brown and usually darker above but often the basal half is yellow; face usually yellow and this colour extends on the comparatively broad and porrect upper mouth-margin and on the entire long and narrow genae as well as on the broad base of the proboscis; often there is a dark brown rounded spot on either side of the produced mouth-margin and the lower half of the face (the genae) and the base of the proboscis may be obscure brownish; proboscis blackish, elongate-conical and as long as, or distinctly longer than the head; antennae entirely blackish.

Thorax deep velvety brown to dark blackish-brown on the dorsum with the three usual darker longitudinal stripes very indistinct and almost inexistant; in some specimens however, the upper border of the median stripe is well apparent so that the upper margin of the disc is yellow with a short, quadrate median black spot and in rare cases only the two admedian very narrow pale lines are visible, but at most on the upper third of the disc; all the calli and lateral margins of the disc are rather extensively yellow except for an elongate-triangular black spot on the anterior margin of the side of the humeral callus; the extremely short (microscopic), sparse pubescence is pale yellowish or whitish but there are about three very short blackish bristles above and a little in front of the wing base; pleurae black and yellow; the propleura are yellow and the sternopleura black but the upper margin extensively yellow; the upper half of the mesopleura are yellow except the anterior margin black, as well as the lower half; pteropleura black and the anterior margin broadly yellow; the pubescence consists of a few very short erect pale yellowish hairs scattered about on the yellow surface of the mesopleura; scutellum usually of uniform velvety blackish-

brown colour occasionally yellowish about the apex, and with sparse, microscopic pale pubescence.

Wings (Pl. II, fig. 12a) hyaline to very feebly but distinctly brownish or feebly infuscated with a well marked dark brown to brownish-yellow venation; squamae with a pale brownish margin; halteres pale yellow to reddish-yellow with the knob often paler, cream colour.

Legs blackish-brown and yellow or reddish-yellow; coxae dusky brown, often the anterior pair less dark and yellowish about the tip; trochanters obscure brownish and reddish-yellow apically; femora brown to dark brownish-black but with the apical third or less yellow to reddish-yellow; tibiae reddish-yellow to yellow, often feebly obscured about the tip and the hind pair usually more so than the rest; tarsi obscure blackish-brown except the metatarsus more or less extensively yellow; the microscopic pubescence is glistening pale yellowish-white; claws black but reddish-yellow about the base; pulvilli pale yellowish.

Abdomen dull velvety blackish-brown with a narrow yellow band on the lower border of each segment which broadens out on the deflexed sides; the yellow band on the first segment is usually much narrower and sometimes absent and sometimes the yellow bands on the apical segments are the broadest; the velvety dark area of the segments bears some scattered, comparatively large but not deep pits or rounded depressions; the pubescence is minute, sparse and pale yellowish; venter extensively yellow and often more or less deeply obscured brownish; the genitalia are almost entirely concealed in both sexes.

♀: Extremely like the male and the differentiation between the sexes in dried specimens is extremely difficult.

♂, ♀. Length of body : 0.9-1.5 mm.; of proboscis : 0.25-4.5 mm.; breadth (with wings expanded) : 2.5-3.5 mm.

E. carthaginiensis is fairly common and may prove to possess a wide distribution in Egypt. I have captured a series of both sexes in the Mariout district (Burg el-Arab), between the middle of February and March 25th and one male specimen in Wadi el-Ramlah, near Mersa Matrouh on February 15th 1939. I have also a very large series collected in several Wadies in Gebel Elba (South-Eastern frontier of Egypt) by my assistant Mohamed Tewfik Effendi and myself in January 1930.

This species is also recorded from other countries in North Africa (Tunisia and Algeria) and from Palestine.

Empidideicus Efflatouni ENG.

Engel (1937) in Lindner : Flieg. Pal. Region, 25. Bombyl. (*Cyrtoides*, subgen. nov.), figs. 47 and 48, T. III, f. 28.

DIAGNOSIS :

A minute to very small fly, at once distinguished by the three ocelli inserted in an almost straight line, the pale yellow to whitish frons, the antennae, whose two basal segments and the style of the third segment are reddish-yellow, the very pale, indistinct yellowish-white wing venation and by the yellowish-white thorax which bears the three dark longitudinal stripes on the dorsum very broad, black and completely united to each other except on the lower third of the disc.

DESCRIPTION :

♂: *Head* (Pl. II, figs. 13, 14 and 15); frons and face of a uniform, more or less pale waxy-yellow colour (which often has a distinct pinkish tinge), the latter being much less protruding forward, at the upper mouth-margin, than in *carthaginiensis* and *mariouti*; this colour extends below on the very narrow cheeks (the lateral margins of the mouth) and on the jowls as well as on the entire lower third of the back of the head; the rest of the back of the head and occiput are blackish-grey and this colour touches the posterior margin of the ocelli where it strongly contrasts with the pale colour of the frons; eye with a small triangular indentation on the anterior or front margin, a little above the base of the antennae, somewhat similar to that found in the species of the genus *Platypygus* (Pl. II, figs. 13 and 14); the pubescence on the head is microscopic, sparse and whitish; proboscis very short, shorter, to as long as, the opening of the mouth, from yellowish-red to reddish-brown and bearing some short, stiff pale yellow hairs; palpi apparently absent; antennae with the two basal segments yellow to reddish-yellow, the third segment pyriform, blackish and with a yellow to reddish-yellow style which is almost as long as the segment.

Thorax (Pl. II, figs. 16 and 17) more or less pale waxy-yellow, often somewhat darker, with a distinct pinkish tinge and with the three blackish longitudinal stripes on the dorsum so broad and united together that almost all the disc appears black with only its anterior and side margins pale yellow; usually the three dark longitudinal stripes are united together on the upper half of the disc only, the side stripes being much shorter than the median stripe, thus the upper fourth to third of the disc is waxy-yellow with a fairly broad median blackish stripe touching the upper margin; on the lower third of the dorsum the median blackish stripe extends down to the lower margin but the side stripes which are shorter above and gradually narrowing down to an obtuse angle below, end each, at a short distance from the postalar callus, and are separated from the median stripe by a thin, elongate-triangular pale stripe whose base continues upwards in a

rounded curve from the postalar callus and its acute apex ends parallel with the base of the wings; sometimes the union of the three blackish longitudinal stripes is complete (to the lower border of the disc) so that the entire dorsum is blackish with only the upper fourth or third (except the median black stripe) and the sides pale yellow; usually also, on the outer border of the side stripes (whether partly or entirely united to the median stripe) and immediately below the transverse suture, there is a more or less rounded-conical blackish emargination; the microscopic pubescence is pale all over and above the wing base there are three or four minute, pale yellow bristles and in spite of the shortness and insignificance of the hairs, minute and fairly dense pits are visible under high magnification; pleurae waxy pale yellowish-white but the anterior lower angle of the mesopleura, the lower half (about) of the pteropleura and most of the sternopleura are obscure greyish-black; the pubescence is present only on the mesopleura, as usual, and consists of some short, soft, erect, whitish hairs; scutellum varying from entirely blackish to yellow with a rounded median blackish spot touching the upper margin and with a very short, sparse yellowish pubescence.

Wings hyaline with a normal venation (agreeing with that of the type of the genus), but which, owing to the extremely pale yellowish-white colour of most of the veins, always ⁽²⁾ renders the latter most inconspicuous; as a rule, the Costa, the entire radial sector and the r-m cross-vein as well as the basal portion of the cubital sector are the only veins which are distinguishable with ease; the stem of the fork M_1+M_2 and vein A_2 are usually effaced but they may be extremely weak; squamae with a pale yellow to dark brownish margin and bare; halteres large and of a more or less pale waxy yellowish-white colour.

Legs of an entirely pale yellowish-white to pale yellow colour with the two or three apical tarsal segments obscure brownish but they may be reddish-yellow; occasionally the femora may possess a more or less large blackish-brown spot occupying the outer basal half; the microscopic pubescence is yellowish-white; claws black but yellow about the base; pulvilli pale yellowish.

Abdomen (Pl. II, figs. 18a, 18b, and 18c) pale waxy yellowish-white to yellowish with a black trapezoidal transverse band on the upper border of each of the first to fourth segments which vary considerably in depth or thickness but which always end before the lateral margins (the deflexed sides) of the segments; the black bands may occupy the middle of the upper half of the segments or almost the entire surface, leaving only a

(²) Engel (1937, *loc. cit.*, p. 102) in his original description was misled by his wrong identification of one specimen of *E. mariouti* nov. spec. which he mistook for a « Northern form », and consequently he states: « Auch die Adern der Flügel sind bei nord-ägyptischen Stücken braun, bei solchen aus dem Süden (Gebel Elba) fast völlig farblos ».

narrow border to the lateral and posterior margins of the segments; on the basal segment the black band is usually much more reduced in depth and breadth and occasionally the fourth segment is entirely pale yellowish; often on each deflexed pale yellow side of the third and fourth segments there is a more or less large, very evenly rounded brownish-black spot, which may be quite isolated, or joining the lower margin of the side of the transverse black band above, by a narrow black line; fifth to seventh segments all pale yellowish and the microscopic pubescence on the abdomen is sparse and uniformly yellowish-white; venter pale waxy yellowish-white to yellowish; hypopygium usually telescoped and concealed but in some specimens (in which it is not entirely hidden), the basal half of the eighth sternite is blackish and the posterior borders of the segment form a fairly large ovoid opening inside which may be seen the yellow tips of the various organs.

♀ : Extremely like the male but usually somewhat larger; ovipositor concealed, but occasionally the apex is visible and is yellowish with somewhat longer, soft, erect whitish hairs.

♂, ♀ Length of body (including proboscis) : 1.5-2.4 mm.; breadth (with wings expanded) : 2.5-4.0 mm.

Engel (1937, *loc. cit.*, p. 102) before giving the description of *E. Efflatouni* erects the species to sub-generic rank by the following words : « Die Kentzeichen für ein auf diese Art gegründetes Subgenus *Cyrtoides subgen. nov.* sind folgende : Robuste, breit gebaute Art, mit hochgewolbtem Thorax und einem dorso-ventral abgeplatteten Abdomen, das breiter als der Thorax ist. Auch die Stirn ist breiter als ein Auge, dessen dorsale Kante eine kleine dreieckige Einkerbung, ähnlich wie bei *Platypygus* aufweist. Die Ozellen stehen nahezu in einer Linie am oberen Stirnrande ». The « triangular indentation on the margin of the eye, similar to that found in *Platypygus* » is not, correctly speaking on the dorsal, but on the front margin; moreover in his figure 48 they are correctly represented above the base of the antennae, while in figure 47 they are quite erroneously drawn below the middle of the front border of the eye and below the base of the antennae. I do not disagree with Engel as to the characters of this species being worthy of subgeneric rank.

E. Efflatouni is not uncommon in Egypt. I have collected it in many localities in the neighbourhood of Cairo (Abu Rawash, Borgash, Kerdāḡa, Kafr el-Dims) between July 13th and August 15th. The only other locality where I have captured it in fairly great numbers is in Gebel Elba, the extreme South-Eastern frontier of Egypt and the Anglo-Egyptian Sudan, between the middle of March to the end of April. Dr. Engel's record of one specimen from Mariout, 25.III.1927, from my collection and which was returned to me, is a typical specimen of *Empidideicus mariouti nov. spec.* and consequently does not refer to this species.

Empideicis mariouti NOV. SPEC.**DIAGNOSIS :**

A very small species at once distinguished by the chamois to honey-yellow colour of the body, the black antennae, the reddish-yellow legs (except the tarsi obscure blackish) and by the three dark longitudinal lines on the dorsum of the thorax being always separated from each other by a narrow chamois stripe and by the median stripe whose lower margin always ends about parallel with the base of the wings..

DESCRIPTION :

♂ : *Head* (Pl. II, figs. 19 and 20) not unlike *Efflatouni* in shape but the frons is less broad, the eyes without the triangular indentation on the margin, and the proboscis is much longer. Frons and face more or less pale brownish-yellow and the former may possess the upper half obscure dark brownish or this colour may be reduced to a rounded, ill-defined dark spot on the centre; the porrect upper margin of the mouth (distinctly more so than in *Efflatouni*) and the narrow cheeks (the lateral borders of the mouth) are usually also brownish-yellow but the latter may be obscure brownish; vertex, on which the middle ocellus is placed distinctly in front of (and not almost in a straight line with) the lateral ocelli, and the occiput, as well as the entire back of the head are blackish and that area bears a characteristic whitish pubescence which, although extremely short, is rather dense and gives it a greyish-black felted appearance; under high magnification minute, dense pits are seen and these are absent in *carthaginiensis* and *Efflatouni*; proboscis about as long as the length of the head and blackish; palpi absent; antennae entirely black with the apical style; which is sometimes dark brown, about half the length of the broad-ovate third segment.

Thorax (Pl. II, fig. 21) chamois to honey-yellow with three broad blackish-brown longitudinal stripes on the dorsum which are always separated from each other by a narrow chamois stripe; the dark middle stripe which has parallel sides and which is usually divided on its upper third to half, by a more or less distinct, narrow, pale line, touches the upper margin of the disc but its lower border never extends to the lower margin, and ends parallel with the wing base; the dark side stripes, which are shorter above as usual, gradually narrow downwards on their lower half, to an obtuse angle ending each, and touching the lower inner angle of the postalar callus; on the outer margin of each of the dark side stripes, below the transverse suture there is a fairly large triangular to rounded-conical blackish emargination, somewhat similar to that found in the two other species; on the anterior corner of the notopleural suture and immediately behind (touching) the humeral callus

there may be a more or less large triangular blackish spot, but this may be quite absent; the very short pubescence, which may decidedly be called microscopic, is very dense (best seen when viewed in profile), yellowish-white and the three or four very short yellowish bristles above the base of the wing are present but the dorsum is characterised by dense minute blackish punctures which gives it a decidedly coarser appearance than in the other species; pleurae obscure brownish-yellow, but usually paler above and bare, except for some very short pale hairs scattered on the mesopleura; scutellum entirely chamois to honey-yellow and with sparse pale microscopic pubescence.

Wings feebly but distinctly tinged brown or feebly infuscated and with a well marked dark brown normal venation; the basal portion of vein M_{1+2} is effaced but the vestige of vein A_2 shows an open 1st A cell; squamae with a pale yellowish margin, bare; halteres with a yellow or reddish-yellow stalk and a very large, pale yellow or cream coloured knob.

Legs from pale to dark reddish-yellow with the tarsi (the apical half of the metatarsus and the four tarsus segments) blackish; coxae blackish except about the apex reddish-yellow; trochanters usually more or less obscure brownish; occasionally the femora may be obscured or brownish near the base; the microscopic (almost inexistant) pubescence is whitish except on the dark tarsi blackish, as usual; claws black but reddish-yellow at the extreme base; pulvilli pale reddish-yellow.

Abdomen (Pl. II, fig. 22) from light chamois to deep honey-yellow with a more or less broad transverse brownish-black band occupying the upper half of rather more than the middle two-thirds, of each of the first to third segments; the dark band on the basal segment usually occupies the anterior half but it may be somewhat semi-circular leaving the middle of the anterior border of the segment chamois (in addition to the posterior and extreme lateral borders); the black stripe on the second segment which is by far the largest, often occupying most of the segment and leaving only the posterior border and lateral sides chamois, is somewhat broad crescent-shaped owing to its rounded posterior margin; the black stripe on the third segment is usually the smallest of the three, occupying the middle third, with its lower margin which is generally emarginate, situated on the anterior third; the very short pubescence is not dense and very pale yellowish; venter more or less dark yellowish and somewhat obscure brownish about the centre; the deflexed sides of the tergites (seen from beneath) distinctly show that the lower border of the segments are pale yellowish; hypopygium concealed, apparently obscure yellowish-brown and possessing very short, erect, pale yellowish pubescence.

♀ : Extremely like the male; ovipositor concealed.

♂, ♀ Length of body : 1.6-2.1 mm.; of proboscis : 0.4-0.6 mm.; breadth (with wings expanded) : 3.5-4.0 mm.

Six specimens only are known so far of this species, four males and two females, captured by me in the flowers of *Calendula* at Burg el-Arab (Mariout district) between March 14th and 25th (1923-27). Dr. Engel's record (see page 31) of one specimen of *E. Efflatouni* Eng. refers to one of the above six specimens.

CYRTOSIA

(Perris, 1839, *Annales Soc. Ent. France*, VIII, 54; Loew, 1846, *Linn. entom.*, I, 418).

SYNONYMY :

Cyrtosia Rond. (nec. Eng.), 1937, *loc. cit.*, p. 103.

TYPE OF THE GENUS :

marginata Perris (1839) [*Annales Soc. Ent. France*, VIII, 55, t. VIII].

Small or very small to minute extremely hump-backed, almost bare flies allied to *Leylaiya* and *Empidideicus* but distinguished from them by the presence of three Radial veins (instead of two), the very puffed out occiput and the well developed pronotum and metanotum.

Head usually ovoid, sometimes as long as, or longer than broad, and often narrower than the thorax; occiput considerably puffed out and conspicuously produced below, ventrally behind the opening of the mouth, into a triangular or conical projection, which is best seen in profile; frons broader above near the vertex than below where it is always more or less deeply excavated (in most specimens owing to shrivelling when dried) and when viewed in profile its sides form almost an angle of 45° with the face which is quite as long (as the frons) and, as in *Empidideicus*, usually more or less produced above, at the upper margin of the mouth; eyes, as in the two preceding genera, with the facets of equal size all over and widely separated in both sexes; genae very narrow, linear; proboscis varying considerably in length, from shorter than the head to as long as the length of the head and the thorax together, in fact it often varies so much in individuals of the same species that it cannot afford a reliable character of distinction; palpi apparently absent and if present, then only very minute and rudimentary (as an extremely minute, microscopic projection bearing a few hairs at the apex); vertex broad, with the ocelli placed on a very feebly raised ocellar tubercle or almost on the same level as the sides of the vertex and the ocelli always form a fairly wide triangle owing to the median ocellus being

always placed a little in front of the lateral ocelli; antennae inserted about half way between the vertex and the upper margin of the mouth and consist of a short cylindrical basal segment, a very short somewhat broader second segment and a pyriform to elongate-ovate third segment ending in a short but usually thick style (the thickness being due to dense microscopic pubescence); this style, as a rule, is distinctly shorter than in the preceding genus.

Thorax very much hump-backed, distinctly more so than in *Leylaiya* and in *Empidideicus*, and with the pronotum and metanotum well developed; the attachment of the head to the thorax is distinctly lower than in the two preceding genera, being much lower than the notopleural suture; humeral and postalar calli stronger than in *Empidideicus*; pleurae well developed and their height usually exceeds the hump of the mesonotum, above the notopleural suture.

Wings with the alula absent but the anal lobe well developed and with the venation less reduced than in the two preceding genera; the Sc fades away in the cell, before reaching the Costa and the latter is strong and thickened a little beyond the tip of vein $R_4 +_5$; the radial sector consists of two branches $R_2 +_3$ and $R_4 +_5$, in addition to the short upper branch R_1 , which joins the costa well after the middle; the r-m cross-vein is placed further away from the base of the wing than in the other two preceding genera, i.e. towards the middle; the basal portion of vein $M_1 +_2$, which forms the upper margin of cell 2nd M is usually less strong than the anterior branched fork and 1st M_2 cell is always absent; vein 2nd A is well marked almost to the wing margin, consequently cell 1st A is present and is always more or less widely open; squamae small, with a very sparse, delicate fringe; halteres comparatively short, with a very large knob.

Legs moderately long and strong; front and hind coxae long; tarsi, especially the metatarsi are somewhat long and the apical tarsal segments are usually blackish, which colour is partly due to the black pubescence on these parts only; claws and pulvilli small.

Abdomen usually not broader than the thorax, cylindrical, feebly bent downwards and often somewhat dorsoventrally flattened; it consists of seven or eight segments and the genitalia in both sexes are almost always entirely concealed; the pubescence although sparse and very short is usually distinct.

The species belonging to this aberrant genus, like those belonging to their closely allied genera *Glabellula*, *Empidideicus* and *Leylaiya*, owing to their extremely small size, added to the fact that the head usually shrivels up beyond recognition when drying, and to their apparently small, concealed genitalia, are among the most difficult and intricate groups of this family to study. Indeed, older authors had placed them in the Families *Rhagionidae*,

Acroceridae and *Empididae*. According to Bezzi (1926, *loc. cit.*, p. 252) they have a very wide geographical distribution; living in all climates and being recorded from Lapland, North America, the Cape of Good Hope, India, Australia and Tasmania. It is quite true that they are only captured on and often inside flowers and I have found them in great numbers in the flowers of various desert *Compositae* as well as in the flowers of *Zilla spinosa*, a very common desert plant everywhere in Egypt.

The metamorphosis is unknown, although according to Bezzi (1926), the pupa of *Pachyneres* (Greene, 1924) was found in decaying wood but no proof was available on the saprophagous habits of the larva and in all probabilities the *Pachyneres* is parasitic on some other saprophagous insect present in the decaying wood.

Ten species are known hitherto from Egypt and very likely many more still await discovery.

TABLE OF SPECIES

- 1 (11) Dorsum of thorax dull, opaque, never shining, with or without the usual darker longitudinal stripes.
- 2 (3) Legs with the very pale yellowish-white or whitish colour of the tarsi, tibiae and apex of femora, strongly contrasting with the blackish femora; style of antenna pale yellow to whitish; wing venation very pale and ill-marked owing to being very light yellowish-white; thorax ashy-grey with the three longitudinal stripes on the dorsum well defined and velvety brownish-black **Gulperii NOV. SPEC.**
- 3 (2) Legs either blackish with yellow or entirely reddish-yellow or yellowish-red but never yellowish-white and the apical tarsal segments always obscured or blackish; style of antenna blackish; wing venation well marked owing to being from brownish-yellow to dark brown; thorax darker coloured or tomented.
- 4 (5) Wings distinctly tinged brown; thorax velvety brownish-grey with the three longitudinal stripes on the dorsum deep velvety blackish-brown, conspicuous, the median stripe being divided by a narrow pale median line **tetragramma BEZ.**
- 5 (4) Wings hyaline or at most, feebly tinged brownish; thorax with the stripes (if at all present) less conspicuous.
- 6 (14) Scutellum of a uniform blackish or blackish-grey colour (without yellow anywhere).
- 7 (10) Proboscis from one and a quarter to twice the length of the head; dorsum of thorax greyish-brown to light brownish-grey with the three longitudinal stripes velvety blackish-brown to brownish-black, the

median stripe being divided by a narrow, thin pale line and usually somewhat more distinct than the shorter side stripes.

- 8 (9) Thorax brownish-grey with the three longitudinal stripes on the dorsum deep velvety blackish-brown; pubescence distinctly coarser and more dense; legs reddish-yellow with the femora only, occasionally obscured about the base (in addition to the blackish apical tarsal segments); abdominal segments with the yellowish transverse band on the lower border, large, often occupying almost the lower half of the segment; largest species **Inji NOV. SPEC.**
- 9 (8) Thorax blackish-grey with the three longitudinal stripes on the dorsum velvety brownish-black; pubescence not particularly coarse, normal; legs blackish with the apex of the femora, base of tibia and metatarsi reddish-yellow and occasionally the latter colour occurring also more or less extensively on the centre of the tibiae; abdominal segments with the yellowish transverse band on the lower border very narrow; medium sized (comparatively) species **abragi NOV. SPEC.**
- 10 (7) Proboscis less than one and a quarter times the length of, and often much shorter than, the head; dorsum of thorax otherwise coloured and tomented.
- 11 (1) Dorsum of thorax dull blackish or shining, with the darker longitudinal stripes very obscure, indistinct or absent.
- 12 (13) Legs blackish, usually with the knees (apex of femora and base of tibia) only yellow, but often the metatarsi and sometimes the tibiae more or less extensively yellow; style of antenna comparatively short, stout and stumpy **nubila BEZ.**
- 13 (12) Legs more or less pale or dark reddish-yellow with the blackish colour on the femora (if at all present) less extensive and the tibiae more or less obscured; style of antenna normal, often thin.
- 14 (6) Scutellum entirely yellow or blackish with the margin only yellow.
- 15 (16) Scutellum with the posterior margin only more or less extensively yellow **marginata PERRIS**
- 16 (15) Scutellum entirely yellow or with the base only blackish (narrowly) or obscured.
- 17 (20) Blackish colour on dorsum of thorax extending on the sides to the lower margin except on the humeral and postalar calli which are yellow (the latter with the yellow colour extending forward in a short triangular-shaped marking).
- 18 (19) Abdomen yellowish-red to dark reddish-brown (*var. nov.*) with the lower border of the segments whitish to yellow; legs yellow to yellowish-red with the femora blackish except about the apex **luteiventris BEZ. et NOV. VAR. minima**

- 19 (18) Abdomen blackish with the lower border of segments yellow; legs, including the femora, yellow to reddish-yellow. ;
- 20 (17) Sides of thorax in front of and behind the transverse suture extensively yellow.
- 21 (22) Yellow sides of thorax interrupted by a broad black production immediately behind and touching the transverse suture, which reaches down to the lower margin **separata** NOV. SPEC.
- 22 (21) Broad black production of dorsum immediately behind the transverse suture, very short, not reaching lower margin **opaca** LW.

Cyrtosia abragi NOV. SPEC.

DIAGNOSIS :

A small to very small species distinguished by the dull blackish-grey thorax with the three longitudinal stripes on the dorsum velvety brownish-black, and by the blackish legs (as in *nubila* Bez.) with the apex of the femora, the base of tibiae and metatarsi reddish-yellow and with the latter colour occasionally present also, more or less extensively on the centre of the tibiae.

DESCRIPTION :

♂ : *Head* yellowish on the lower half of the frons and face, but the yellow colour on the former extending upwards in the shape of a rather acute triangle on the centre of the upper half of this area, leaving the sides (two broad outer triangles) dull blackish, like the vertex, occiput and all the back of the head; the very narrow genae are yellow like the face and this colour extends down and around the hind margin of the mouth, but the centre of the protruding lower half of the face (upper mouth opening) is blackish; the extremely short yellowish-grey pubescence, noticeable when viewed in profile, on the upper half of the frons and on the back of the head is fairly dense, and more apparent than in the other species except in *Injii*; proboscis blackish, about as long as in *Injii*, from one and a quarter to almost twice as long as the head; antennae blackish, third segment elongate-pyriform and the style is of normal length but comparatively stout.

Thorax dull blackish-grey with the three longitudinal stripes on the dorsum velvety brownish-black, very similar in size and shape to those in *Injii*, and with the humeral and postalar calli only, yellow; the median velvety brownish-black stripe which extends from the upper border to a short distance below the middle of the disc is divided by a narrow, median, greyish stripe; the side stripes, which are much shorter above as usual and not well defined are interrupted by a fairly broad, short, greyish transverse

stripe bordering the transverse suture; when viewed in profile the scutum is all blackish-grey with the calli only yellowish; the extremely short pale greyish to whitish pubescence is fairly dense, decidedly shorter and less coarse than in *Injii* and the usual three or four minute bristles above the wing base are pale yellowish and accompanied, in front, by a few shorter outstanding yellowish hairs; pleurae blackish-grey with an ill-defined yellowish spot on the front margin of the mesopleura and a larger yellowish spot on the front margin of the sternopleura; the extreme upper border of the mesopleura and pteropleura is usually also obscurely yellow; scutellum greyish-black with a sparse pubescence similar to that on the dorsum of the thorax.

Wings hyaline, with a well marked, blackish-brown, normal venation; squamae with a yellowish margin and a very short, slight, white fringe; knob of halteres and the apical half of the stem, pale yellowish-white to reddish-yellow but the basal half of the latter is usually more or less obscure brownish.

Legs very dark and very much like those of *C. nubila* Bez.; femora blackish except the apex yellow to reddish-yellow: tibiae varying from blackish-brown with both extremities yellow, to more or less dark reddish-brown with the base, apex and often the middle area as well, paler; tarsi blackish, but the metatarsus is more or less extensively yellow on the basal half; the minute whitish pubescence is microscopic and insignificant; claws black and reddish-yellow about the base; pulvilli pale yellowish.

Abdomen dull greyish-black with a very narrow (short) transverse yellowish band on the lower border of each segment or, in other words, the lower border of the segments are yellowish; the very short, sparse, whitish pubescence is comparatively longer than in the other species but somewhat shorter, and less dense than in *Injii*; venter blackish with the lower border of the sternites yellowish and almost bare; hypopygium concealed, apparently reddish-brown.

♀ : Very similar to the male, but often somewhat larger and plumper, the legs sometimes paler (particularly the tibiae) and the yellow bands on the lower border of the abdominal segments are often somewhat longer than in the male, but never as long as they usually are in *Injii*; ovipositor concealed, apparently brownish-yellow.

♂, ♀ Length of body (including the proboscis) : 2.5-4.0 mm.; breadth (with wings expanded) : 3.8-6.0 mm.

Ten males and thirteen females, including the types, of this species were collected by my assistant Mohamed Tewfik Effendi at Bir Abrag on February 22nd 1938. This locality is of considerable interest owing to its geographic and isolated position (about 100 kilometers North-West of Bir

Shalatein, on the Red-Sea Coast, which is the administrative frontier of Egypt and the Anglo-Egyptian Sudan.

Cyrtosia Gulperii NOV. SPEC.

DIAGNOSIS :

A minute fly, at once distinguished from all the other species by the extremely pale colour (almost whitish) of the tibiae and tarsi which strongly contrasts with the blackish femora whose apex is also yellowish, the pale yellow style of the antenna, the very pale and ill-marked wing-venation and by the ashy-grey thorax which possesses the three longitudinal stripes on the dorsum large, well defined and velvety brownish-black.

DESCRIPTION :

♂ : *Head* (Pl. III, fig. 23) ; frons, face and genae pale whitish-yellow but the latter are often darker, somewhat obscured below, about the mouth-margin and the frons frequently more or less dark about the centre, where it is hollowed out ; the pale colour of the frons extends to, and touches the margin of the median ocellus but the upper lateral corners of the frons, between the hind and upper corner of the eye and the vertex, as well as the occiput and all the back of the head are dark greyish-black or blackish ; proboscis blackish and its length is about equal to that of the head ; antennae with the two basal segments and the third rounded-oval segment blackish and the narrow rod-shaped style more or less pale yellow.

Thorax (Pl. III, figs. 24 and 25) bearing a delicate whitish tomentum which, with the black ground colour gives it a light ashy-grey appearance, but the humeral and postalar calli are yellow as usual and the three longitudinal stripes on the dorsum are well defined and velvety brownish-black ; the median dark stripe which is narrow and parallel-sided and which extends from the upper border to a short distance below the middle of the disc (on a line parallel with the base of the wings) is distinctly divided by a narrow greyish median line or stripe ; the side stripes which are much shorter above, are each interrupted by a fairly broad greyish transverse stripe bordering the transverse suture and below, they end somewhat indistinctly on about the same level with the lower margin of the median stripe ; when viewed from the side the scutum bears, in addition to the yellow calli mentioned above, two yellow spots which are not visible from above ; the first of these immediately in front of, and touching the transverse suture is very variable in shape and size, from very large triangular and extending almost to the humeral callus, to much smaller and somewhat trapezoidal in shape ; the second yellow spot is, in reality, a broad rod-shaped to triangular extension

of the front corner of the yellow postalar callus, running upwards and forward at an angle of about 45 degrees; the microscopic pubescence is insignificant, whitish and the usual five or six somewhat longer, outstanding stiff hairs above the wing base are pale yellow; pleurae obscure blackish-brown but the upper margin of the pteropleura and mesopleura, as well as the front margin of the latter yellow; the mesopleura also possesses an ill-defined yellowish stop towards the middle; scutellum greyish-black but velvety brownish-black about the base and bearing a very short, sparse whitish pubescence.

Wings with a normal venation but characterized by the extremely pale yellowish colour of the veins which renders them difficult to distinguish, as in many species of *Empidideicus*; squamae with a yellow margin and almost without a fringe; halteres more or less pale yellowish and the stem is often obscure brownish about the base.

Legs characterized by the extremely pale yellowish, almost whitish colour of the tarsi, tibiae and apex of the femora; the latter are from dark brown to blackish except the apex more or less pale yellow and, in the darkest forms, when the tibiae are yellow the apical tarsal segments are, at most, very feebly obscured; the microscopic pubescence is glistening whitish; the minute claws are blackish but pale yellow about the base and the microscopic pulvilli are whitish.

Abdomen velvety brownish-black with the extreme lower border of the segments more or less pale yellow and with a very short, sparse, pale yellowish pubescence; venter obscure brownish-black; genitalia (Pl. III, fig. 26) reddish-brown with longer whitish pubescence.

♀: Very similar to the male but usually somewhat plumper; ovipositor concealed, apparently yellowish.

♂, ♀. Length of body (including proboscis) : 1.6-2.1 mm.; breadth (with wings expanded) : 2.9-4.0 mm.

Ten males and seven females of this species are known, all originating from Gebel Elba (South Eastern desert) and captured by my assistant Mohamed Tewfik Effendi between March 15th and April 30th 1928.

Cyrtosia Injii NOV. SPEC.

DIAGNOSIS :

A small (although, by far the largest of our species) distinctly elongate fly, distinguished by the long proboscis, the reddish-yellow legs which may occasionally be obscured about the basal half of the femora (in addition to the blackish apical tarsal segments), the brownish-grey thorax whose three longitudinal stripes on the dorsum are deep velvety blackish-brown, the comparatively broad yellowish stripes on the lower border of the abdominal segments and by the distinctly coarser and more dense pubescence of the body.

DESCRIPTION :

♂ *Head* (Pl. III, fig. 27) : frons yellowish but the upper third is often blackish and the hollowed out centre more or less obscured; face, cheeks and the back of the mouth-margin yellow; vertex, occiput and all the back of the head uniformly greyish-black and the very short pale pubescence is distinctly more apparent than in the other species; proboscis black, decidedly longer than usual, being from one and a quarter to twice as long as the head; antennae blackish, third segment elongate conical and the style narrow and rod-shaped.

Thorax (Pl. III, fig. 28) more or less pale brownish or dirty-grey, dull, with the three longitudinal stripes on the dorsum velvety blackish-brown to brownish-black and the humeral and postalar calli only yellowish; the median dark stripe which extends from the upper border to a short distance below the middle of the disc (on a line parallel with the base of the wings) is divided by a narrow median greyish stripe; the side stripes, which are much shorter above, as usual, are not well defined and interrupted by a fairly broad greyish transverse stripe bordering the transverse suture; the lower margin of the side stripes lies obscurely on a line parallel with that of the median stripe; when viewed from the side the scutum is all greyish-black with the calli only, yellowish; the very short pale yellowish pubescence is decidedly denser and coarser (being also somewhat longer) than in the other species, there being numerous longer outstanding hairs above the wing base and the entire dorsum is densely, although minutely covered with pits; pleurae greyish-black with the margins of the mesopleura as well as the front part of the sternopleura yellowish; scutellum greyish-black with a sparse pubescence similar to that on the dorsum of the scutum.

Wings with a very feeble brownish tinge and with a well marked blackish-brown, normal venation; squamae with a pale yellow margin and a very short, sparse whitish fringe; halteres pale yellow to reddish-yellow with the stem more or less extensively obscured brownish about the base or basal half.

Legs entirely reddish-yellow with the apical tarsal segments always blackish but the femora are sometimes more or less extensively obscure brownish about the basal half and occasionally the whole femora except the tip are reddish-brown; the very short pubescence is glistening yellowish-white and a little longer and more outstanding on the dark brown coxae and on the sides of the posterior femora; claws black but yellowish-red about the base; pulvilli pale reddish-yellow.

Abdomen (Pl. III, fig. 29) greyish-black with a yellow transverse band on the lower border of each segment which varies from one fourth to half

the length of the segment; often the yellow band becomes longer towards the apex so that the sixth segment is yellow and only its extreme upper border blackish; the pubescence is correspondingly longer than in all the other species and uniformly pale yellowish or yellowish-white; venter obscure blackish with the lower border of the sternites yellowish and with a sparse whitish pubescence; hypopygium concealed, apparently reddish-brown.

♀ : Very similar to the male; ovipositor concealed.

♂, ♀ Length of body (including the proboscis) : 3.8-4.5 mm.; breadth (with wings expanded) : 5.3-6.8 mm.

Fourteen males and ten females of this species are known, collected by Mohamed Tewfik Effendi and myself in Gebel Elba, Wadi Edeib (South Eastern Desert) during the second half of January, 1930 and 1933. Also one female originating from Kawal el-Nadayet (S.E. Desert) 23.2.1938. Seven of the females, as well as the last mentioned specimen possess a brownish-yellow venation and an ill-defined somewhat triangular yellow spot on the side of the scutum immediately in front of the transverse suture; in the same specimens also the yellowish colour of the frons extends back to the base of the median ocellus and in one specimen from Gebel Elba the fourth to sixth abdominal segments are almost entirely yellow and the yellowish colour of the postalar callus extends obscurely upwards and forward somewhat in the shape of a triangle.

***Cyrtosia luteiventris* BEZ.**

Bezzî (1926), *Bull. Soc. Roy. Entom. Egypte*, 1925, 258, '6, 262; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 105, 109, f. 49).

DIAGNOSIS :

A very small species, at once distinguished by the shining black thorax, the entirely yellow scutellum which may be blackish or obscured only near the base and by the yellowish-red abdomen which possesses the lower border of the segments paler.

DESCRIPTION :

♂ : *Head* (Pl. III, fig. 30) yellowish on the lower part of the frons (above the base of the antennae) and on the face, but the yellow colour on the former extends upwards in the shape of a triangle on the centre of the upper half of the frons, leaving the sides (two broad outer triangles) shining black like the vertex; sometimes the entire lower two-thirds of the frons are yellowish like the face and only the upper third or fourth shining

black; occiput shining black and the latter with extremely short, sparse, microscopic pale pubescence; the very narrow genae and the posterior margin of the mouth are yellowish; proboscis blackish-brown, very short; being about one half the length of the head but fairly stout; antennae blackish, third segment narrow, elongate-conical with a short, stumpy style.

Thorax (Pl. III, fig. 31) entirely shining black on the dorsum and sides except the humeral and postalar calli yellow, and this colour on the latter extending forward and forming a large yellow spot above the base of the wing, as in *opaca* Lw.; the minute, microscopic pubescence is pale yellowish about the centre of the disc and whitish on the sides, and the usual four tiny bristles, above the base of the wings are pale yellow; pleurae blackish except the upper margin of the mesopleura and all around the wing base, yellow; sometimes the front and hind margins of the mesopleura are more or less extensively yellow and usually there is a large somewhat triangular yellowish spot on the hind margin of the sternopleura and a similar spot on the upper third of the hypopleura; scutellum entirely yellow to reddish-yellow, but often obscure brownish or blackish about the base and with sparse, microscopic pale yellowish pubescence.

Wings hyaline with a yellow to pale brownish-yellow, normal venation, except that the fork M_1+M_2 is less divergent than in the other species, the two veins being almost parallel to each other; squama with a yellow margin and a very slight, short white fringe; halteres with the knob from pale yellow to yellowish-red, and the stem usually darker, particularly so about the base.

Legs yellow to reddish-yellow, with the coxae, trochanters and apical tarsal segments blackish and the femora obscure brownish except about the apex; the brownish colour on the femora varies somewhat in depth and extent, sometimes being quite pale and covering less than the basal half or it may be quite dark, blackish-brown, and extending over the entire femora except the tip; the microscopic pubescence is most insignificant and whitish; claws black, but yellow about the base; pulvilli pale yellowish.

Abdomen cylindrical, as broad as, or narrower than the thorax and varying from entirely yellowish-red with the posterior margins of the segments hardly paler to dark reddish-brown with the lower border of the segments pale yellowish; the extremely short sparse pubescence is whitish; venter similar in colour to the dorsum and with sparser pubescence; hypopygium concealed, apparently brownish.

♀ : Very similar to the male; ovipositor concealed.

♂, ♀ Length (including proboscis) : 1.9-3.0 mm.; breadth (with wings expanded) : 4.0-5.2 mm.

C. luteiventris is not uncommon in most of the Wadies of the Eastern desert, South East of Cairo and Helouan. I have captured it, usually hover-

ing over, or in, the flowers of *Zilla spinosa* in Wadi Garawi, Wadi Hoff, Wadi Um-Elek, Ogret el-Cheikh, Wadi Dar el-Maskhara, Wadi Sinnour and Wadi Rishrash; I have also two specimens from Wadi El-Lega, Southern Sinai and my records extend from 8th March to 24th April.

Many of the smaller specimens (under 2 mm. in length) exhibit a much darker general colouration, the abdomen being almost brownish-black with the lower border of the segments yellowish and the tibiae, in addition to the femora (except the apex) are obscured before the apex and base; these however are at once distinguished by the short proboscis and by the colour of the thorax and scutellum (var. *minima* nov.).

***Cyrtosia marginata* PERRIS**

Perris (1839), *Ann. Soc. Ent. France*, VIII, 55, t. VIII; Loew (1846), *Linn. entom.*, I, 422, 3; Schiner (1862), *F. A.*, I, 70; Bezzi (1926), *Bull. Soc. Roy. Entom. d'Egypte*, 1925, 257; Engel (1937) in Lindner *Flieg. Pal. Region*, 25, *Bombyl.*, 110, t. III, f. 31).

DIAGNOSIS :

A very small dull greyish-black fly with a distinct brownish tinge, easily distinguished by the thorax, on the dorsum of which the darker longitudinal stripes are very ill-defined, indistinct, and by the yellow colour on the sides, extending extensively and almost without interruption from the humeral to the postalar calli, as well as by the scutellum whose lower border only is more or less extensively yellow.

DESCRIPTION :

♂: *Head* with the yellow colour on the face extending upwards on most of the frons, very much as in the preceding species, somewhat in the shape of a triangle and leaving only the outer upper angles dull black like the vertex, occiput and all the back of the head; genae obscure yellowish and all the posterior mouth-margin is yellow as usual; the minute, microscopic pubescence on the blackish part of the head is pale yellowish and insignificant; proboscis black and about as long as, to half the length of the head; antennae black, third segment pyriform and with a short, very stout stumpy style which is pale yellowish at the extreme apex.

Thorax dull greyish-black with the three blackish longitudinal stripes on the dorsum very indistinct, the median stripe being somewhat better defined and consequently the dorsum may be, in other words, described as blackish with two greyish-black longitudinal stripes; the sides of the scutum are extensively yellow, this colour extending all along to the equally

yellow postalar callus (Pl. III, fig. 32); the very minute, microscopic pale pubescence is practically inexistant and the usual four minute bristles or short bristly hairs above the wing base are yellowish; pleurae obscure blackish-grey with the borders of most of the sclerites more or less extensively yellow and this colour being always much more expanded on the upper margin of the mesopleura and all around the base of the wing; when viewed from the side, the thorax is extensively yellow all about the notopleural suture except for a triangular blackish spot on the suture, immediately behind the humeral callus; the yellow colour on the pleurae may also frequently be very expanded below, on the lower borders of the pteropleura and sternopleura, so that the pleurae may be described as yellow with more or less large, rounded, ill-defined blackish-grey spots about the centre; scutellum greyish-black with the lower border more or less extensively yellow or reddish-yellow and a microscopic, sparse pale yellowish pubescence.

Wings very feebly but distinctly tinged brownish and with a well marked yellowish-brown, normal venation; squama with a pale yellow margin and a very slight (almost absent) white fringe; halteres from cream colour to reddish-yellow and the stem is usually obscured near the base.

Legs reddish-yellow to more or less dark yellowish-red with the femora blackish-brown except the apical third and extreme base, and the tarsi obscured; sometimes the hind tibiae are somewhat obscured, but the front tarsi are usually blackish, while the middle and hind tarsi are at most blackish-brown or dark reddish-brown; the microscopic pubescence is glistening pale yellowish; coxae and trochanters blackish and often reddish-yellow at the tip; claws black but reddish-yellow at the base; pulvilli pale yellowish.

Abdomen dull greyish-black with the lower border of the segments yellow and with some rounded or oval shining black pits scattered here and there, on the segments; the yellow transverse bands are somewhat broader on the deflexed sides of the segments and the minute sparse pubescence on the abdomen is pale yellowish; venter obscure brownish with the lower border of the sternites yellow, and almost bare; hypopygium (Pl. III, fig. 33) often not concealed, large, rounded and more or less dark chestnut brown.

♀ : Very much like the male but often somewhat larger and plumper and the yellow bands on the lower border of the abdominal segments (Pl. III, fig. 34) are usually much broader, occupying about the lower third of each segment; moreover these yellow bands become more and more broad towards the apex so that the sixth segment is often entirely yellow and the fifth segment yellow except the anterior border blackish; ovipositor yellowish-brown.

♂, ♀ Length of body (including the proboscis) : 1.9-2.9 mm.; breadth (with wings expanded) : 3.0-4.6 mm.

This species, although very common on the Western Coast of the Mediterranean, is very local in Egypt like *C. tetragramma* Bez. I have captured large series in the Mariout district (from Ikingi to Hammam) between the 20th of February and the middle of March in the flowers of our early desert Compositae, such as *Calendula* and *Chrysanthemum*. I have also collected it at Mensa Matrouh. (Wadi el-Ramlah) on February 15th.

C. marginata Perris is not known from any other part of Egypt but it has previously been recorded from Southern Europe and from North Africa.

Cyrtosia nubila BEZ.

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 188 (*Empidideicus*) et (1926), *id.*, 1925, 256, 257.; Engel. (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 105, 112.

DIAGNOSIS :

A very small dark coloured (the darkest) species, distinguished by the dorsum of the thorax which is blackish and usually without apparent design, the very short, stout and stumpy antennal style, and by the legs, on which the blackish colour is more extensive than in most other species.

DESCRIPTION :

♂ : *Head* (Pl. III, fig. 35) black, dull, all over the back, occiput, vertex and the upper two-thirds of the frons but the lower part of the latter, as well as the face are yellowish⁽³⁾; occasionally the yellowish colour above the base of the antennae is obscure brownish; the extremely narrow genae are from yellowish to obscure brownish and the lower part of the head is usually obscured and darker than in the other species; proboscis black, fairly stout and as long as, or only a little longer than the length of the head; antennae black, third segment distinctly stouter, less elongate than in other species, being from rounded-oval to short pyriform, and bearing a very short but stout, stumpy style.

Thorax usually entirely black with the humeral and postalar calli only yellow, but not unfrequently greyish-black and the three darker longitudinal stripes on the dorsum present, although, hardly ever very distinct; the

⁽³⁾ Bezzi (1925, *loc. cit.*, p. 188, 5) in his original description of *nubila* (*Empidideicus*) erroneously describes the head as being entirely black; I have examined the types from which his description was made and the yellow colour of the face as well as on the lower part of the frons (above the base of the antennae) is apparent and beyond discussion.

microscopic pubescence is brownish about the centre of the disc but whitish on the sides and the usual four erect bristly hairs above the wing base are yellowish; pleurae greyish-black but the borders of the notopleural suture (upper border of the mesopleura), the front border of the mesopleura and all the margins of the pleurae below the wing base are yellow; there is also a more or less large yellow spot on the hypopleura; scutellum entirely black to greyish-black with microscopic whitish pubescence.

Wings hyaline with a well marked brownish-yellow to blackish-brown normal venation; squama with a yellow to brownish margin and an extremely slight white fringe; halteres with the knob varying from ivory yellow to reddish-yellow and with a more or less dark brownish stem.

Legs blackish-brown with the apex of the femora, the base of the tibiae and the base of the metatarsi yellow; the colour of the femora is always distinctly darker than the tibiae which vary considerably and are occasionally only feebly obscured or brownish-red; coxae and trochanters blackish but reddish-brown at the apex; the very short microscopic pubescence is glistening pale yellowish; claws black but reddish-yellow at the base; pulvilli pale reddish-yellow.

Abdomen dull greyish-black with very narrow transverse yellow bands on the lower border of the segments and the bands on the apical segments being distinctly broader; occasionally the yellow transverse bands are absent on the two or three basal segments and these often possess very few rounded shining black pits; the very short (not dense) pubescence is whitish or pale yellowish; venter obscure brownish-black with the lower border of the sternites yellow, and the deflexed sides of the tergites showing the yellow lower border decidedly broader than on the dorsum; hypopygium (Pl. III, fig. 36) not entirely concealed, rather large, rounded and dark reddish-brown to blackish.

♀ : Similar to the male but often much larger, somewhat more elongate, with the yellow transverse bands on the lower border of the abdominal segments distinctly broader, the colour of the legs often less dark (particularly so on the tibiae) and with the third segment of the antennae decidedly narrower and longer (in comparison with the breadth); also the style of the antenna is not stout as in the male but narrow and rod-shaped; ovipositor more or less dark reddish-brown.

♂, ♀ Length of body (including the proboscis) : 1.5-4.3 mm.; breadth (with wings expanded) : 3.3-6.0 mm.

C. nubila is by far our commonest species of the genus and also, probably, the commonest of our very small Bombyliids.

I have several hundred specimens originating from the Eastern Desert from Cairo to the Anglo-Egyptian Sudan frontier (Gebel Elba) or, in other

words, many of the Wadies of the Red Sea Hills from Suez to Mersa Halaib. I have frequently captured it in February and March flying around or resting (feeding) inside the flowers of *Zilla spinosa* in Wadi Hoff, W. Garawi, W. Zohleiga, W. Morrah, W. Rishrash, W. Um Elek and Ogret el-Cheikh. I have also collected several specimens from Wadi Edeib, Gebel Elba and my records extend from February 10th to April 16th. Although this species is extremely common in Egypt, yet no record of it exists North of Cairo, nor is it recorded from any other country.

Cyrtosia opaca LW.

Loew (1846), Linn. entom., I, 420, 1, t. III, f. 25, 28, 30; Engel (1937), in Lindner Flieg. Pal. Region, 25, Bombyl., 105, 114., T. III, f. 33.

SYNONYMY :

perfecta Beck. (1910), *Deutsche Entom. Zeitschrift*, 637, 30 (*Empidideicus*); Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 106, 114, T. III, f. 34.

DIAGNOSIS :

A minute fly easily distinguished by the dull, deep charcoal-black dorsum of the thorax on which the usual design is very ill-defined and its entirely yellow sides, the broadly yellow lower border of the scutellum and by the entirely pale yellow legs whose apical tarsal segments only are blackish.

DESCRIPTION :

♂ : *Head* (Pl. III, fig. 37) with the posterior half, including most of the frons, vertex, occiput and all the back, dull black but the anterior half, i.e. the lower margin of the frons (above the base of the antennae), the entire face and the very narrow genae, as well as the posterior margin of the mouth yellow; proboscis black, fairly stout and a little shorter than the length of the head; antennae black, third segment elongate pyriform are bearing a comparatively longish but not stout style which is yellowish only at the extreme tip.

Thorax (Pl. III, figs. 38 and 39) extensively yellow on the sides and the dorsum bearing an extremely thin and slight, although sometimes distinct yellowish tomentum which is absent in the position of the usual longitudinal stripes and thus the background shows a characteristic dull, deep charcoal-black colour; in well preserved specimens the median dark stripe is fairly distinct on the anterior third of the disc and is divided by a narrow,

paler median line, and the side stripes, which are much shorter as usual, are very ill-defined; in most specimens however, the entire dorsum is dull black and shows no design; the yellow colour on the sides of the disc is uninterrupted by any blackish colour from the dorsum as the black production behind the transverse suture is very short (Pl. III, fig. 38); the extremely short microscopic pubescence is pale yellowish and practically inexistant; pleurae almost entirely yellow, sometimes obscured, and the elongate triangular black spot on the notopleural suture immediately behind the humeral callus is conspicuous; pronotum and metanotum blackish and the pleurae are often also blackish below; scutellum with the lower margin broadly yellow, so that the dull charcoal-black colour is in the shape of a more or less small hemispherical spot at the base, in the centre, and with a pubescence similar to that of the scutum.

Wings with a very feeble although distinct brownish tinge and with a well marked blackish-brown normal venation; squamae with a pale yellow margin and almost without a fringe; halteres from pale yellowish to reddish-yellow, and the stem is somewhat obscured at the base.

Legs entirely yellow to pale reddish-yellow with only the four apical tarsal segments and the apex of the metatarsus obscured or blackish; the microscopic pubescence is glistening whitish; claws black but reddish-yellow about the base; pulvilli pale yellowish.

Abdomen brownish-black, dull, with very narrow transverse yellow bands on the lower border of the segments but with the bands becoming gradually broader towards the apex; sixth and seventh segments often entirely yellow; the extremely short pubescence is yellowish; venter reddish-yellow, more or less extensively obscured or blackish about the base; hypopygium (Pl. III, fig. 40) large, yellow, but the inner organs shining reddish-brown.

♀ : Very similar to the male but the abdomen is often somewhat broader; ovipositor yellow or reddish-yellow.

♂, ♀ Length of body (including the proboscis) : 1.5-1.9 mm.; breadth (with wings expanded) : 2.2-3.1 mm.

I feel somewhat compelled to drop Becker's species *perfecta*, to the rank of synonymy as I fail to find a characteristic specific difference in the original description. Moreover Dr. Engel, in 1936 when studying the collection of Egyptian *Bombyliidae* which I had sent him, has returned four specimens of *C. opaca* Lw. collected at Gebel Elba, two of which bearing the identity label in his own hand-writing : *Cyrtosia opaca* Lw. *sec. typ.* and the other two specimens which are identical, he identified as *Cyrtosia perfecta* Beck. !

Ten males and seven females of this species are known from Egypt, all originating from the South-Eastern frontier of Egypt and the Anglo-

Egyptian Sudan (Gebel' Elba) and collected by Mohamed Tewfik Effendi from the middle of March to the end of April, 1928. Loew's type, a female, originates from Sicily, and Becker's type of *perfecta*, also a female was collected in Corsica and as far as I am aware, no other record of this species exists from other countries.

Cyrtosia separata NOV. SPEC.

DIAGNOSIS : *Cyrtosia separata* nov. spec.

A small species with entirely reddish-yellow legs (except the apical tarsal segments blackish), recognized by the shining black dorsum of the thorax which extends in a short median black stripe to the upper margin of the disc leaving its outer third yellow and by the yellow sides of the thorax which is interrupted by a broad black production behind the transverse suture and reaching down to the lower border, as well as by the yellow scutellum which is blackish at the base, in the centre.

DESCRIPTION :

♂ : Unknown.

♀ : *Head* (Pl. III, fig. 41) ; upper margin and middle third of the frons black and this colour extends over the vertex, occiput and all the back of the head ; the sides and lower part of the frons are yellow like the face, genae and the mouth-margin ; proboscis black except at the tip reddish-brown, about as long as the head, fairly broad at the base and rather sharply pointed at the apex ; antennae black, third segment short-pyriform and bearing a fairly stout and not very short style.

Thorax (Pl. III, figs. 42 and 43) extensively yellow on the front border and on the sides but with the dorsum shining black and forming a characteristic design as follows : this black colour, on the anterior fifth of the disc extends forward in the shape of a broad median longitudinal stripe about one third the breadth of the disc and reaches the upper border ; on each side, the shining black colour of the dorsum is produced in a short, somewhat rounded spot behind the transverse suture, whose apical margin is at some distance from the lower border of the disc ; the microscopic pubescence is brownish about the centre and whitish on the sides and the usual four minute, erect bristles above the wing base are brown ; notopleural suture with a very elongate-triangular blackish spot with the base of the triangle behind the humeral callus, as usual ; pleurae extensively yellow about the anterior, upper and posterior margins but blackish towards the centre ; pronotum and mesonotum blackish ; scutellum with the lower margin rather more broadly yellow than in *opaca* Lw. and with a small hemispherical black spot

at the base, in the centre, and with a sparse, microscopic pale brownish pubescence.

Wings hyaline with a well marked dark brownish-yellow normal venation; squamae with a pale yellow margin and a slight white fringe; halteres pale reddish-yellow.

Legs brownish-yellow with the knees (apex of femora and base of tibiae) yellow and the apical tarsal segments blackish; the microscopic pubescence is glistening pale yellowish; claws black but reddish yellow at the base; pulvilli pale reddish-yellow.

Abdomen blackish-brown, somewhat shining with the lower border of the segments reddish-yellow and the extreme lower margin pale yellowish; the reddish-yellow transverse bands are somewhat broader on the deflexed sides of the segments and the latter bear a very few rounded, very shining black pits, scattered here and there; the short adpressed pubescence is pale yellow; venter obscure dark yellowish-brown with the lower border of the sternites yellow; ovipositor yellowish-brown.

♀ Length of body (including the proboscis) : 3 mm.; breadth (with wings expanded) : 4.5 mm.

Only one specimen, the type, is known, captured by me at Burg el-Arab, Mariut, on March 16th 1935.

***Cyrtosia tetragramma* BEZ.**

Bezzi (1926), *Bull. Soc. Roy. Entom. Egypte*, 1925, 257, 261, 5; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 105, 115.

DIAGNOSIS :

A small robust species with the wings distinctly tinged brown, at once distinguished from all the other known species by the thorax which is brownish-grey and on which the deep velvety blackish-brown longitudinal stripes are conspicuous, with the median stripe always distinctly divided by a median pale greyish line.

DESCRIPTION :

♂ : *Head* (Pl. IV, figs. 44 and 45) : frons dull blackish-brown but always more or less obscurely yellow on the basal third or fourth (above the base of the antennae); face yellow but sometimes obscure brownish or blackish above and on the sides of the produced part, and the yellowish colour usually extends down on the very narrow genae and behind the mouth margin, but sometimes these parts are also obscure brownish; vertex, occiput and all the back of the head dull blackish-brown; pubescence decidedly

more pronounced than in the other Egyptian species, the face and the sides of the frons bearing some scattered, stiff, pale yellowish hairs and the occiput fairly dense brownish-grey pubescence; proboscis black, fairly stout and usually a little longer than, but sometimes almost twice as long as the head; antennae black but usually the second segment and the extreme apex of the style (including the minute terminal hair) are pale yellow; third segment stout ⁽⁴⁾, elongate-pyriform and bearing a longish but stout style.

Thorax (Pl. IV, figs. 46 and 47) black, except the humeral and postalar calli yellow and the dorsum is covered with dense greyish-brown tomentum and with the three longitudinal stripes well apparent owing to being of a deep velvety brownish-black colour; the median stripe, which extends from the upper border to a short distance below the middle of the disc is always distinctly divided by a pale grey median line and the side stripes are shorter above, as usual but broader, and interrupted at the transverse suture; the sides of the disc, whose extreme lower margin (immediately above the notopleural suture) is yellowish, bear a pale greyish tomentum; the pubescence is dense, a little shorter than in *Injii*, greyish-yellow or brownish about the centre but whitish on the sides and the usual four erect tiny bristles above the wing base are brownish and accompanied by a few erect yellowish hairs; pleurae greyish-black with yellow margins and this colour being more extensive on the upper and front margin of the mesopleura and beneath the wing base; humeral callus and upper half of the mesopleura with some comparatively longish, upstanding pale yellowish hairs; scutellum black, bearing a brownish-grey tomentum and with the posterior border more or less extensively yellow; this yellow colour varies from being very narrow, obscured and only seen from the back, to quite conspicuous and occupying the entire apical third of the scutellum; the pubescence is similar to that on the scutum but less dense and pale.

Wings distinctly obscured by a brownish tinge and with a well marked, dark brown, normal venation; squamae with a very pale yellow margin and almost without a fringe; halteres with the very large knob ivory white to pale reddish-yellow and usually with the short stem somewhat darker or obscure brownish-yellow, especially about the base.

Legs blackish with the apical fourth of the femora, base of tibiae and base of metatarsi yellow or pale reddish-yellow and bearing a minute glistening pale yellowish pubescence; apex of coxae and trochanters and extreme base of femora reddish-yellow; claws black but reddish-yellow about the base; pulvilli pale reddish-yellow.

⁽⁴⁾ Bezzi (1926, *loc. cit.*) in his original description is wrong in writing of the antennae: «...; troisième article étroit, linéaire, avec un style massif mais sans soie terminale». The third segment is, as described by me, decidedly stout, and the style, which is pale yellowish at the tip always possesses the apical sensory hair also pale yellowish.

Abdomen stout, broader than the thorax, black but bearing a thin white tomentum which gives it a greyish-black appearance and with the lower border of the segments pale yellow or yellowish-white; these pale bands are usually very narrow on the basal segments and broader on the apical segments but sometimes they may occupy the apical third of the first and second segments and more than the apical half of the consequent segments and are distinctly broader on the deflexed sides; the segments possess a few large rounded or oval shining black pits scattered here and there; the pubescence is not dense, whitish to pale yellowish, longer, as usual, than on the rest of the body but somewhat shorter than in *Inji*; venter blackish-grey, with the lower border of the sternites pale yellowish and apparently bare; hypopygium large, rounded very shining blackish and not concealed.

♀ : Extremely like the male; ovipositor yellowish-brown and rather concealed.

♂, ♀ Length of body (including the proboscis) : 2.3-3.5 mm.; breadth (with wings expanded) : 4.5-5.5 mm.

C. tetragramma is not uncommon in the Mariout district in March and I have captured large series of both sexes at Burg el-Arab between March 5th to 25th. Most of my specimens were caught while the fly was resting or feeding in the dark centre of the pretty orange flowers of *Calendula* and they were frequently found covered with yellow pollen. Curiously enough I have also a single male specimen collected by me in Wadi Morrah (S.E. of Helouan) on February 21st 1930 and this is the only record of the occurrence of this characteristic species, elsewhere than in the Mariout. The above mentioned specimen however, although unmistakably *C. tetragramma* may be termed a pale variety, as it exhibits a broader yellow posterior margin of the scutellum, much broader pale yellow bands on the posterior border of the abdominal segments and the tibiae as well as the basal half of the metatarsi are reddish-yellow and the former only feebly obscured a short distance before the base.

This species is not known hitherto from any other country.

PLATYPYGUS

(Loew, 1844, *Stet. Ent. Zeitg.*, V, 127, 4, et 1869, *Beschr. europ. Dipt.*, I, 252, nota).

SYNONYMY :

Popsia A. Costa, 1863, *Atti Acad. Napoli*, I, 51.

TYPE OF THE GENUS :

chrysanthemii Lw. (1844), *Stet. Ent. Zeitg.*, V, 127, 1, t. II, f. 6-8, et (1869), *Beschr. europ. Dipt.*, I, 252, nota (*Cyrtosia*, lapsus!).

Small very humpbacked, almost bare, yellow flies with blackish design on the thorax and abdomen and with the 1st M_2 cell always present.

Head (Pl. IV, figs. 48 to 54) a little narrower than the thorax and almost rounded when seen from above (Pl. IV, figs. 48 to 52) but when viewed in profile it is much longer than high owing to the considerably puffed out occiput (which is even more conspicuously produced below than in the genus *Cyrtosia*), into a large triangular shield-like projection, one on each side of the posterior mouth opening (Pl. IV, figs. 53 and 54); frons a little broader above, near the vertex than below, where it is somewhat hollowed out above the base of the antennae, and when seen in profile its sides form a weakly convex line with the much shorter porrect upper part of the face (below the base of the antennae) which is then abruptly directed vertically down at an angle of 45 degrees forming the upper and side margins of the mouth; eyes widely separated in both sexes and with the facets of equal size all over but always with a minute triangular indentation on the anterodorsal margin, a short distance above the base of the antennae; proboscis ⁽⁵⁾ long (a little longer than the length of the head) or very long (about three times the length of the head); palpi minute, very short and often concealed in the opening of the mouth; antenna much resembling that of *Cyrtosia*, the two basal segments being very short and equivalent in length and the third segment pyriform, with an apical style which is usually thickened by the presence of microscopic pubescence and always bearing a short apical sensory seta.

Thorax very deeply humpbacked with the pronotum and metanotum strongly developed; the attachment of the head to the thorax is exceedingly low, being immediately above the base of the elongate anterior coxa, so that the summit of the head is on an almost straight line with the notopleural suture.

Wings with a venation much less reduced than in *Cyrtosia* as the 1st M_2 cell is always present and the R sector in addition to R_1 vein, forms two branches: R_2+3 and R_4+5 ; the Sc does not fade away in the cell before reaching the Costa, and the latter is strong and thickened for a short distance beyond the tip of R_4+5 ; 1st A cell always open; alula absent; anal lobe well developed; squama almost bare; halteres with a short stalk and a large knob.

Legs neither strong nor elongate, usually pale except the apical tarsal segments obscured, and even blackish owing to the minute pubescence consisting of microscopic black bristles.

⁽⁵⁾ This refers to our only species *melleus* Lw. for which Séguy (1931, *Ann. Mus. Cio. Stor. Natur., Genova*, LV, 1930-31, 80) proposed the establishment of a new Sub-genus *Cyrtisiphis*.

Abdomen distinctly broader than (in our single representative of the genus, *melleus* Lw.) but it may be as broad as, or narrower than, the thorax; it consists of seven or eight apparent segments and the apical sternite is large and usually conceals the genitalia; in the male however the crossed branches of the forceps and in the female two short oval cerci project outwards.

Nothing is known so far concerning the bionomics of this genus.

Out of the nine species known hitherto from the Palaearctic Region only one, *melleus* Lw. is found in Egypt.

Platypygus melleus LW.

Loew (1856), N. Beitr., IV, 31, 14; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 189, et (1926) *id.*, 1925, 261; Paramonow (1926), *Konowia*, B. V, h.1, 85, 87, et (1929), *Mém. Acad. Sciences Ukraine*, t. XI, l. 2, 197, 203; Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, *Bombyl.*, 121, 125, f. 58, 59., Tab. IV, f. 42).

SYNONYMY :

algirus Param. (1929), *Mém. Acad. Scienc. Ukraine*, t. XI, l. 2, 197, 199.

maculiventris Lw. (1874), *Zeits. gesamt. Natur.*, XLIII, 416, 10.

singularis Séguy (1931), *Ann. Mus. Civ. Stor. Natur. Genova*, LV, 1930-31, 80, 81, f. 1).

DIAGNOSIS :

A small very humpbacked yellow fly, at once distinguished by the very long (almost three times the length of the head), black proboscis and by the two basal segments of the antennae which are yellow.

DESCRIPTION :

♂ *Head* (Pl. IV, figs. 48 to 54) entirely yellow or rather of a waxy citron yellow but usually only the frons is obscure brownish towards the centre (in the hollowed out part), and on the occiput there are always three rounded-oval blackish spots, one immediately behind and touching each ocellus; these dark spots are very variable in colour, size and position, being from pale brown to black, small rounded oval and well separated from each other, or touching each other and forming one large triangular blackish spot on the very feebly raised ocellar tubercle; occasionally also these spots are shifted on the left side, being not at all symmetrical, as if they had been « stamped » neglectfully and not centred (Pl. IV, figs. 48

and 52), the pubescence on the head consists of some very minute, sparse, black microscopic stiff hairs scattered on the upper sides of the frons about the vertex and occiput; proboscis black, feebly, but distinctly arched, and varying from two to almost three times the length of the head; antennae with two first segments yellow and the third segment black and bearing a fairly stout, longish style which varies in colour from blackish to yellowish-brown but which is always pale at the tip and possessing a minute pale terminal sensory hair or bristle; the two basal segments bear some microscopic black stiff hairs.

Thorax (Pl. IV, figs. 55 to 59) from pale citron yellow to deep honey colour with the three longitudinal stripes on the dorsum also varying considerably in colour, from quite pale brownish-orange to dark blackish-brown, but they are more often brown and edged with orange; the median dark stripe, which is higher than the side stripes as usual, and touches the upper margin of the disc, broadens out above and its lower border, which ends about parallel with the squamae, terminates in a blunt arrowshaped design; this stripe may or may not be divided by a very narrow pale median line; the dark side stripes, are much shorter above than the median stripe, more or less distinctly interrupted at the transverse suture and are longer below than the median stripe, ending each by a fairly acute point which almost touches the inner corner of the postalar callus; frequently, on each side of the disc, immediately behind the transverse suture (in front and above the wing base) there is a rounded or sub-quadrate brown spot; notopleural suture with a large pear or tear-shaped blackish spot immediately behind the humeral callus; the microscopic pubescence on the disc is fairly dense and, although extremely short is stiff, bristly and almost all blackish; pleurae almost entirely yellow, shining and bare except for a very few microscopic stiff blackish hairs on the upper third of the mesopleura; usually the anterior stigma (prostigma) is blackish and an obscured ill-defined spot on the anterior third of the mesopleura, a similar brownish spot on the posterior third of the hypopleura are present and all the lower portion of the pleurae are obscured; scutellum entirely yellow with a bristly pubescence similar to that of the scutum, usually blackish, but sometimes pale brownish or yellowish.

Wings (Pl. IV, fig. 60) hyaline with a well marked more or less dark brown venation; r-m cross-vein placed remarkably close to the base of 1st M_2 cell; squama with a yellow to dark brown margin and almost without a fringe; halteres from pale whitish-yellow to reddish-brown and the stalk usually obscured above.

Legs entirely yellow except the coxae and trochanters often obscure brownish and the two or three apical tarsal segments blackish; the extremely

short, minute bristly pubescence is mostly blackish; claws black but reddish-yellow about the base; pulvilli pale yellow.

Abdomen broader than the thorax, often entirely yellow to dark blackish-brown but frequently with an admedian row of rounded or elongate oval blackish spots, one pair on each of the second to sixth segments; these spots are situate on the upper half of the segments and touch the upper border, and the pair of blackish spots on the second segment are the smallest; the stiff, sub-erect, bristly pubescence is decidedly longer than on the thorax, a little longer still on the sides and is mostly blackish but often yellowish on the basal segment and sometimes pale as well, about the centre of the second and third segments; venter yellow, but often obscure brownish and sometimes the extreme deflexed sides (visible only from beneath) of the tergites are blackish: hypopygium (Pl. IV, fig. 61) yellow to reddish-brown, with reddish-yellow pubescence which is very short on the large forceps and much longer on the dorsal parts.

♀ : Extremely like the male; ovipositor yellow and the cerci brownish-yellow.

♂, ♀ Length of body, 2.5-3.8 mm.; of proboscis, 1.6-2.5 mm.; breadth (with wings expanded) : 5.0-6.5 mm.

P. melleus Lw. is the only representative of the genus hitherto known from Egypt, unless *maculiventris* Lw. proves to be a distinct species, as many of the specimens possessing the row of admedian black spots on the abdomen show a decided tendency towards a somewhat longer and paler general pubescence of the body. In spite of this, however, I am of the opinion that such specimens represent a mere variety, as much as the specimens possessing the entire abdomen blackish-brown show an other variety. In some of the individuals bearing the two rows of black spots, one or two of the spots of one, or of both rows, are entirely absent, an evidence of the unreliability of such a character.

This species is fairly common in all our Eastern Desert. I have captured large series from all the Wadis S. and S.E. of Cairo and Helouan, Wadi Digla, W. Hoff, Ogret el-Cheikh, W. Maskhara, W. Um Eleik, W. Silly, W. Gharba, W. Gharagid, W. Zohleiga, W. Garawi, W. Gindali, W. Wizrak (North Galala Plateau) and W. Rishrash. I have also collected it at Ezbet el-Nakhl, and from South Sinai, Wadi El-Legaa at 1700 metres altitude. My records extend from 21st March to 30th April. *P. melleus* is an excellent hoverer; I have often watched it hovering over bushes of *Zygo-phyllum album* in bloom. I have rarely seen it in the middle of a Wadi but curiously enough always at the extreme edge and usually in the shelter and shade of some stone boulder, which are so common in these localities and which often form small grottos where Arachnids spin their cobwebs.

This species is also known from Spain, Greece and from other parts of North Africa (Morocco and Giarabub Oasis).

MARIOBEZZIA

(Becker, 1912, *Annu. Mus. Zool. Acad. Sc. St. Petersb.*, T. XVII, 470)

TYPE OF THE GENUS :

Lichtwardti Beck. (1913), *Annu. Mus. Zool. Acad. Sc. St. Petersb.*, 1912, T. XVII., 578, 111., f. 24, 25.

Small or medium sized flies remarkable by the shape of the head which very much resembles that of the *Conopidae*, the face which is much longer than the frons and by the well pronounced sexual dimorphism.

Head distinctly broader than the thorax, much broader than long in the female and much less so in the male (almost rounded). Eyes in the male, separated at the vertex by the ocellar tubercle (which is comparatively large and well raised) and in the female by a distance which is equal to almost three times the width of the less highly raised ocellar tubercle or more than the width of one eye; in the male, the eyes are large, rounded and the facets of the upper half are enlarged; face much longer than the frons, considerably drawn out into a perpendicularly sloping, very feebly rounded or flat keel and the lateral margins of the latter form deep furrows alongside the narrow parallel-sided genae; occiput much less puffed out in the male (particularly above) than in the female; mouth opening small, only a little shorter than the short proboscis which is somewhat like that of the *Muscidae*; palpi very small, short and filiform, one segmented; antennae not very approximated at the base and consist of two short sub-cylindrical basal segments of which the second (always shorter and more rounded) usually bearing a short dorsal spine-like process⁽⁶⁾; third segment of antenna linear, more than twice the length of the two basal segments together, pointed at the apex and bearing a very short dorsal preapical style.

Thorax short, sub-quadrate and almost flat dorsally; pronotum very weakly developed; scutellum strong, well developed.

Wings with a venation which reminds one of that of *Conophorus*; the Sc is always somewhat thickened before its junction with the Costa and from this area a brownish tinge or infuscation always extends down to 1st M_2 cell where it usually fades away; r-m cross-vein almost always placed

(⁶) Engel (1937, *loc. cit.*, p. 95) says that the second antennal segment in the female shows a dorsal spine-like elongation which is absent in the male; and this, he adds, is questionable whether it is constant, since he possessed only one male. After careful examination of the rich series of both sexes in my possession I may state that this curious structure is not always present in the male of *Lichtwardti* and I have found it in all the females of our two Egyptian species.

after the middle of the usually rather short 1st M_2 cell; 1st A cell always closed at a small distance from the margin and consequently with a short petiole; squamae with a short fringe; halteres well developed.

Legs short, not strong and clothed with a short and rather delicate pubescence; claws and pulvilli normally developed.

Abdomen short, conical, never much longer than the thorax and with a pubescence which, like that of the head and thorax, varies from very short sparse and very delicate to quite dense and erect; hypopygium large, stout and bent forward ventrally; female ovipositor with spines.

Owing to the fact that the sexes are often so unlike, and owing to the scarcity of the individuals (at least, until they were found in great numbers, in Egypt), as well as to the wide geographical distribution of the type of the genus (almost always in isolated individuals of one sex only, from Persia, Asia Minor, Egypt, Anglo-Egyptian Sudan to Southern India), most of the species recorded by Paramonov (1929, *loc. cit.*) and by Engel (1937, *loc. cit.*) as belonging to this genus should fall to the rank of synonymy or occupy, at the most, a varietal rank. Males of *Lichtwardti* were captured in copula with females of *Lichtwardti* Beck., *Zarudnyi* Beck. and *pellucida* Param., and as the above mentioned males are identical with *griseohirta* Nurse, the only other species (besides *Lichtwardti* Beck.) out of Engel's list which remains worthy of specific rank is Becker's species *Ebneri* (1922, *Denkschr. d. Acad. d. W. Wien*, Bd. 98, 59) from the Anglo-Egyptian Sudan. This latter species is described from a single male specimen and is said to have yellow antennae with the basal segment and apex of the third segment brown and shining black legs.

TABLE OF SPECIES

- 1 (2) ♂ Pubescence on entire body white; on frons absent, on face at most very short, very sparse, delicate; on anterior half of thorax most of the hairs are closely adpressed as if brushed and glued down, on posterior half and on scutellum the hairs are short, erect and sparse; on abdomen short, sub-erect and not dense. Wings with a more or less dark, conspicuous brownish spot on middle of anterior half.

♀ General pubescence on entire body almost inexistant. Dark median longitudinal stripe on dorsum of thorax extending to middle or just beyond middle of disc (unless thorax is entirely black). Abdomen reddish-yellow to brown with the two (or more) basal segments possessing a pale or white lower border, and if the segments are black, this latter colour never forms a regular design

Lichtwardti BECK.

2 (1) ♂ Pubescence on entire body grey to brown; on frons erect, rather tufted and on face only a little shorter and sparser; on entire thorax, scutellum and abdomen longish, erect and rather tufted. Wings with a brownish tinge or infuscation towards the middle of the upper margin (on the apical half of the Sc.) or the infuscation may extend, but less dark, on the entire outer two-thirds, leaving only the basal third hyaline.

♀ General pubescence on entire body evident, although short. Dark median longitudinal stripe on dorsum of thorax extending beyond the lower border of the disc and on the upper margin of the scutellum. Abdomen brownish-red with citron-yellow hind border to most of the segments and with a broad black transverse band on each of the three or four basal segments and a quadrate or triangular median black spot on the upper border of each of the consequent segments.

..... **Catherinae NOV. SPEC.**

Mariobezzia Catherinae NOV. SPEC.

DIAGNOSIS :

A small to medium sized fly, the male at once distinguished by the grey to dark brown and rather tufted, erect pubescence on the entire body (including the frons), and the female by the dark median longitudinal stripe on the thorax which reaches to, and beyond (on the upper margin of the scutellum) the lower border, and by the abdomen which is reddish-yellow with paler hind margins to the segments and with broad transverse black bands on the three or four basal segments and a quadrate or triangular median black spot on the upper border of each of the following segments.

DESCRIPTION :

♂ : *Head* (Pl. V, figs. 62 to 64) shining drab-grey with a broad black stripe extending all along the summit of the flat keel of the face, from the base of the antennae to the upper mouth margin; when seen from the front the frons, the sides of the face and the upper third of the genae possess a distinct brown tinge, while the deep furrows (between the face and genae) are extensively blackish and the lower half or so of the latter is greyish-white; frons occasionally with a blackish ill-defined spot on each side of the lower half near the outer margins and the blackish colour may extend over the entire face and end in a triangle immediately above and between the base of the antennae; the pubescence on the head is very characteristic, being all dark brown, erect, even and fairly dense, except on the face where the hairs are less numerous than on the frons and genae but hardly

shorter; ocellar tubercle with a few erect blackish-brown hairs and a tuft of dense longish hairs behind (on the occiput); occiput with short stiff brownish-yellow or greyish-brown hairs; jowels with a broad transverse blackish stripe which runs on each side from the base of the margin of the mouth to the lower inner eye-angles and which contrasts with the greyish-white genae and the pale brownish-yellow margin of the back of the head (bordering the lower hind margin of the eyes); the middle two-thirds of the back of the head is blackish; proboscis and palpi brownish-black, the latter with a very few short stiff brown hairs on the ventral side; antennae blackish but the two basal segments obscure reddish-brown; second segment with the usual short dorsal spine-like process; third segment at most two and a half times the length of the two basal segments together and the latter bearing some short, stiff yellow to brownish hairs on the sides and beneath.

Thorax (Pl. V, fig. 65) black, with a very characteristic greyish-brown to dark yellowish-brown pubescence which is rather erect and shaggy all over and fairly dense and tufted on the sides of the upper half of the disc; sometimes there is an evident trace of two white admedian longitudinal stripes on the upper third (or less) of the scutum (by white tomentum) and occasionally the postalar calli are greyish-yellow; scutellum black with a pubescence similar to that on the scutum but decidedly sparser; occasionally the scutellum is obscure brownish-red and blackish only about the base; pleurae black, shining with fairly long shaggy brownish pubescence.

Wings hyaline with a more or less weak infuscation around the junction of the Sc with the C which may extend very lightly to the lower margin of 1st M_2 cell or fade away on R_1 vein; r-m cross-vein placed well after the middle of 1st M_2 cell; squamae with a pale yellow to brown margin and a short whitish to brownish fringe; halteres with the knob milky-white and the stem pale greyish-brown and darker about the base.

Legs with all the coxae and trochanters black; femora black and yellowish-grey to greyish-yellow about the tip; front tibiae with the basal half yellowish-grey and the apical half blackish; middle tibiae usually the same as the front tibiae but sometimes blackish except the tip greyish-yellow; hind tibiae also variable, from all blackish except the base greyish-yellow or greyish-yellow with the apical third blackish; usually all the tarsi are black; the short pubescence (decidedly longer and more dense than in *Lichtwardti*) is blackish-brown to reddish-yellow (extremely pale in one of the three specimens); claws reddish-brown and black about the tip; pulvilli greyish-yellow.

Abdomen (Pl. V, fig. 65) shining black with a narrow transverse yellowish-white band on the lower border of every segment; the pubescence is

fairly long, erect more or less dense and varying from dark brown (almost blackish) to whitish-grey; venter black with a pale yellowish transverse band (broader than on the dorsum) on the lower border of every sternite and with shorter, sparse brownish pubescence; genitalia concealed, apparently blackish.

♀ : Very different to the male but not unlike the pale large form in the female of *Lichtwardti* from which it is easily distinguished by the dark median longitudinal stripe on the dorsum of the thorax extending down to the lower border of the disc and by the black colour on the abdomen forming a regular design on the segments (transverse bands and spots).

Head (Pl. V, figs. 66 to 68); frons orange-yellow, with an oval black spot on each side, towards the middle; face and genae citron yellow but the former with a broad black longitudinal stripe extending from the base of the antennae to the upper margin of the mouth and the sides of this black stripe is edged with orange yellow; the citron yellow colour of the sides of the face extends over the deep furrows covering the cheeks and down over the jowls and all over the back of the head to the occiput; vertex with a broad sub-quadrate black spot on each side, between the outer border of the blackish ocellar tubercle and the inner angle of the eye; the pubescence on the head, although very short, is very characteristic being erect, rather coarse and blackish all about the summit (on the upper two-thirds of the frons, on the ocellar tubercle and on the occiput behind the latter and the vertex) but elsewhere (face, genae, back of head and occiput) it is much shorter, sparser and reddish-yellow; antennae with the basal segment reddish-yellow; the second segment reddish-brown but blackish dorsally and with the spine-shaped dorsal process strong and black; third segment of antennae black with the dorsal pre-apical style well developed and bent somewhat hook-like.

Thorax (Pl. V, fig. 69) citron yellow with three broad blackish longitudinal stripes on the dorsum; the middle stripe which is much broader, extends from the upper margin of the disc to the lower two-thirds in almost equal breadth, but here it narrows down considerably and continues in the shape of an elongate-triangle whose base extends beyond the lower margin of the disc and on the middle two-thirds of the base of the scutellum; the side stripes which are divided each by a citron yellow stripe at the transverse suture, extend from a short distance below the upper border of the outer third of the disc down to the inner angle of the postalar callus; in other words, each side stripe is divided into two blackish spots separated from each other by a transverse citron yellow stripe at the transverse suture, the upper spot being somewhat quadrate in shape, and the lower spot, which is much broader above than below, is very elongate-oval and gradually nar-

rows down to a rounded point ending on the inner angle of the postalar callus; the pubescence is reddish-yellow, short, sparse and appressed on the upper third of the disc except on the sides where it is much longer, erect and somewhat tufted but on the lower two-thirds of the disc the very short pubescence is erect, rather stiff and scattered scutellum citron yellow except for the somewhat crescent-shaped blackish stripe on the middle two-thirds of the base (which appears to be the lower margin of the median longitudinal stripe of the thorax) and bearing a very short but erect and stiff reddish-brown pubescence; pleurae citron yellow and blackish, the latter colour apparently extending over all the sternopleura and on the lower half or so of the mesopleura as well as on the front half of the pteropleura; the pubescence on the pleurae is longish, not at all dense but shaggy and reddish-yellow.

Wings as in the male but the infuscation, although weak, appears to extend almost to the apex and lower margin.

Legs much lighter coloured than in the male, almost entirely reddish-yellow; coxae and trochanters yellowish-red but the latter with a small elongate-oval blackish spot at the apex ventrally which extends feebly on the extreme base of the femora; all the femora and tibiae are reddish-yellow but the front and hind tibiae feebly obscured at the tip; metatarsi reddish-yellow but obscure blackish about the apex and in the front pair this black colour is more pronounced than on the middle and hind pairs; all the rest of the tarsus segments are blackish (the front tarsi correspondingly darker, black); the short fairly dense, stiff and sub-erect pubescence on the legs is somewhat mixed, reddish-yellow and blackish-brown, the latter being prevalent chiefly about the apex of the middle femora, the apical half of the hind femora and on the middle and hind tibiae.

Abdomen (Pl. V, fig. 70) brownish-red with the lower margin of the first to fourth or fifth segments citron-yellow and with a transverse black band on each of the three or four basal segments as well as a quadrate or triangular median black spot on the upper border of each of the consequent segments; basal segment with the black transverse band narrow, occupying almost the entire upper half of the segment but ending laterally, on both sides at some distance from the side margins but hidden in the centre by the apex of the scutellum; this black stripe is narrowly edged with brownish-red or orange and the remaining portion of the segment (the lower half and sides) are citron yellow; second segment with the black band broader than on the other segments, its upper margin situated close to the upper border of the segment and its lower margin, which is less emarginate, placed immediately below the middle of the segment; the following transverse black stripe on the third segment is somewhat similar in shape and

position to that on the preceding but is less broad and feebly convex in the middle so that its middle third or fourth touches the upper border of the segment and its concave lower margin (in the centre only) possesses a short and broad triangular emargination; fourth segment with the black transverse band narrower than the band on the preceding segment but expanding out in the centre into a quadratè spot, one angle of which touches the upper border of the segment (in the centre) and the opposite angle forms a short and broad triangular emargination in the centre of the lower margin of the black stripe; the lateral margins of the above three black transverse stripes all extend to and on the lateral border of their respective segments; fifth segment with a median sagittate black spot whose base touches the upper margin of the segment and with an ill-defined blackish spot on each side, on the lateral border and in the position of the sides of the black stripe; sixth segment with a black spot on each extreme outer border (in the upper half) and with an acute triangular-shaped black spot in the centre with the base of the triangle touching the upper border of the segment; seventh segment with an ill-defined larger blackish spot touching the middle third of the upper border and with an acute triangular-shaped emargination in the centre of its lower margin; venter pale yellow with the apical segment obscure blackish-brown and with a very short, sparse, sub-erect yellowish pubescence; ovipositor with soft, shaggy brownish-grey hairs and two admedian rows of spines arranged dorso-ventrally and each row consisting of about five, outwardly bent, dark brown spines.

♂ : Length of body (including the proboscis) : 5.4-6.0 mm.; breadth (with wings expanded) : 9.0-11.2 mm.

♀ : Length of body (including the proboscis) : 11.5 mm.; breadth (with wings expanded) : 14.3 mm.

Only three males and one female (including the types) of this most interesting species are known; one male was captured in July 1941 in Wadi El-Lega (South Sinai) and the two other males and the single female in an upper branch of the same Wadi (Wadi Garagneya) towards the middle of August 1942. This locality is situated at an altitude of 1750 metres above sea-level and all the specimens were caught while resting on stones and sandy gravel in the sun.

Mariobezzia Lichtwardti BECK.

Becker (1913), *Annu. Mus. Zool. Acad. Imp. St. Petersb.*, T. XVII, 1912, 578, 111, figs. 24, 25; Paramonow (1929), *Mém. Acad. Scienc. Ukraine*, T. XI, livr. 2, 78, 79; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 96, 98, f. 41.

SYNONYMY :

griseohirta Nurse (1922), *Journ. Bombay Nat. Hist. Soc.*, V, 28, 887; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, T. XI, livr. 2, 78, 80; Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 96, 97, et *var. nov. griseohirta-egyptiaca*, figs. 42, 43 and 44

pellucida Param. (1929), *Mém. Acad. Sciences Ukraine*, T. XI, livr. 2., 78; Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 96, 98.

Zarudnyi Beck. (1913), *Annu. Mus. Zool. Acad. Imp. St. Petersb.*, T. XVII, 1912, 579, 112; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, T. XI, livr. 2, 78, 80; Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 96, 99, f. 45.

DIAGNOSIS :

A very small to medium sized fly, the male being easily distinguished by the white pubescence on the upper half of the thorax which is very adpressed as if brushed back and glued down, and the female by the median dark longitudinal stripe on the thorax which (unless the thorax is entirely black) always ends on, or just beyond, the middle of the disc and by the abdomen whose colour varies from yellow to blackish with the two basal segments (or more) possessing a pale or white lower border.

DESCRIPTION :

♂ : *Head* (Pl. V, figs. 71 to 75); frons from pure waxy white to honey yellow, always very shining and either quite bare or bearing a very few scattered microscopic whitish hairs; face varying considerably from entirely shining blackish to more or less dark brown on the sides with the centre black, but the pale waxy colour of the frons always extending down on the narrow genae; the pubescence on the face may be inexistant or it may consist of a very few short whitish hairs scattered here and there; vertex and ocellar tubercle blackish and this colour usually extends on the equally bare occiput and on all the back of the head, but sometimes the jowls are yellowish-brown and the lower eye-margins are more or less broadly pale brownish-yellow; proboscis blackish-brown to blackish; palpi blackish; antennae usually entirely blackish, dull, but sometimes the basal segment is reddish-brown and more rarely the second segment is obscure reddish-brown as well; the two basal segments bear some very short whitish hairs and the second segment possesses almost always the short dorsal spine-like process (which may occasionally be hidden by the pubescence); third segment about three times the length of the two basal segments together and quite bare.

Thorax (Pl. V, fig. 77) black and bearing a very characteristic white pubescence which, on the upper half of the disc consists of closely adpressed

hairs (usually so much adpressed that they give the appearance of their having been glued down) but on the sides there are sometimes a few longer, erect pale yellowish or pale brownish hairs; in addition to the pubescence, the anterior half also possesses a fine, thin white tomentum which gives it an evident grey appearance which rather contrasts with the posterior half; this latter is devoid of tomentum and its pubescence is of a totally different nature, consisting of much sparser (often very sparse indeed), erect, shorter hairs; occasionally the centre of the lateral margins and the posterior margin of the thorax (including the postalar calli) are distinctly yellowish-red or brownish-red and this colour extends on two more or less broad admedian longitudinal stripes from the lower margin to about the middle of the dorsum; pleurae shining blackish with some soft white hairs on the upper and hind margins of the mesopleura as well as on the pteropleura and sternopleura; scutellum usually black, shining and bearing a similar very sparse, short erect pubescence to that found on the posterior half of the scutum, but sometimes the basal half is blackish and the apical half obscure reddish-brown and occasionally it may be entirely brownish-yellow and hardly obscured at the base.

Wings (Pl. V, fig. 76) hyaline with a more or less dark brown spot immediately after the middle and extending from the area of the junction of the Sc with the C down to the r-m cross-vein or a little below it in 1st M_2 cell where it usually fades away; this spot is sometimes rather pale and its lower border fades away before even reaching the r-m cross-vein but it is often dark, large and conspicuous and its lower border fades away below the 1st M_2 cell; r-m cross-vein placed always well after the middle of 1st M_2 cell; squamae with a whitish to brown margin and a short white fringe; halteres with a pure snow white to chamois knob and the stalk more or less extensively obscure blackish about the base.

Legs : coxae and trochanters usually black, but sometimes the extreme apex of the former and extreme base of the latter reddish-brown; all the femora are blackish but reddish-yellow about the apex; front tibiae varying from all blackish except at the base reddish-yellow, or with the apical half blackish and the basal half reddish-yellow or the reddish-yellow colour may extend over the two-thirds of the segment leaving the apical third black; middle tibiae reddish-yellow or yellowish with the apical third brownish to blackish; hind tibiae reddish-yellow or yellowish and brownish to blackish at the apex; front tarsi usually all blackish but sometimes the metatarsi are reddish-yellow about the base; middle tarsi often all blackish with the metatarsi reddish-yellow about the base and sometimes this latter colour is more extensive leaving only the apical half or apical third of the metatarsi blackish; hind tarsi reddish-yellow and black and

the latter colour being less extensive than on the middle tarsi, as it is evident only on the three apical segments, the metatarsi and the second segment obscured only about the apex; the very short and soft pubescence all over the legs is whitish and only a little longer on the femora; claws reddish-yellow about the basal half and blackish on the apical half; pulvilli more or less pale reddish-yellow.

Abdomen (Pl. V, fig. 77) extremely variable; it often is blackish, shiny with a fairly broad transverse whitish to ivory yellow band on the lower border of the first and second segments only; sometimes similar whitish bands are found on the lower border of every segment (first to fifth or sixth) and the band on the basal segment is usually the broadest; occasionally the whitish bands on the second to sixth segments are immediately preceded, or bordered by a more or less broad yellowish-red or orange band and this orange colour may entirely replace the whitish colour of the posterior border of the fourth and fifth segments; in a few cases the orange colour is fairly extensive, having ill-defined margins and merging into the blackish colour of the base of the segments; sometimes the orange colour is also present on the sides of the basal segment, but always above the very broad whitish posterior border (at least half or more, the breadth of the segment); the pubescence is short, sparse, all whitish and only a little longer and more outstanding on the sides near the base; venter blackish-brown to yellowish-red or chestnut with a very short and sparse whitish pubescence; genitalia (Pl. V, fig. 78) brownish-black to yellowish-brown with very short whitish pubescence.

♀ : Unlike the male and extremely variable.

Head (Pl. V, figs. 79 to 84, and Pl. VI, figs. 85 to 92) may be entirely black in which case the occiput only is blackish-brown or it may be entirely citron yellow with the ocellar tubercle and the vertex blackish (a transverse blackish stripe extending between the inner corner of the eye and the outer posterior ocellus); sometimes the blackish stripe on the vertex is very broad and its colour runs down more or less extensively on the sides of the upper half of the frons, in which case the remaining portion of the frons, the genae and the occiput are brownish-yellow; the face may be entirely blackish or entirely citron yellow or it may be citron yellow with a median longitudinal more or less broad brownish to blackish stripe; the pubescence on the entire head is practically inexistant as it consists of a very few tiny white hairs scattered on the frons and face; antennae, proboscis and palpi as in the male.

Thorax (Pl. VI, figs. 85 to 92) from entirely black and very shining, without a trace of paler stripes to citron yellow or brownish-yellow (very shining) with three broad, conspicuous reddish-brown to blackish longitudinal

stripes on the dorsum, the middle one of which extends from the upper margin to a short distance below the middle of the disc and the side stripes, which are usually divided by a yellow line below the transverse suture (but not always) extend from a small distance below the humeral callus, down to the inner angle of the postalar callus and they are much broader above than below where they gradually taper to a broad point; sometimes the thorax is almost entirely black with two narrow, admedian, ill-defined brownish-red longitudinal stripes and in fact all the intermediate gradual variations are present, between the entirely black and the pale brownish-yellow forms (Pl. VI, figs. 85 to 92); scutellum varying also from entirely shining black to more or less dark shining citron yellow, the intermediate forms being reddish-yellow to brownish-yellow and more or less densely speckled with black; the practically inexistant pubescence on the thorax consist of a very few and extremely short, closely adpressed whitish hairs on the anterior third or fourth of the disc and of some similar but erect and pale yellowish hairs on the sides of the upper half, including the humeral calli; the pleurae are also extremely variable, from all black, or mottled black and brownish-yellow to entirely yellow with the apex of the sternopleura obscure brownish-black; the pubescence on the pleurae is even more insignificant than on the dorsum and may be termed inexistant.

Wings as in the male but the brownish spot situated immediately after the middle on the area of the junction of the Sc with the C is often very pale and sometimes so much so that it may be almost termed inexistant.

Legs variable as in the male.

Abdomen extremely variable; in the dark forms it is entirely shining black with the posterior border (about half) of the basal segment white and the posterior border (about the apical fifth or less) of the second segment brownish-yellow or yellowish-grey; in the paler (citron yellow) forms the abdomen is entirely brownish-yellow with the lower half or rather more of the basal, the apical fourth to fifth of the second and the lower border of the third segments whitish; in the intermediate forms, the segments of the proximal half of the abdomen are more or less extensively obscure blackish, but always with the lower border whitish or whitish-yellow and all the distal half (of the abdomen) is more or less obscure reddish-brown; the extremely short and insignificant whitish pubescence is only hardly visible about the sides of the two basal segments; venter from black to reddish-yellow; spines of ovipositor yellow.

♂, ♀ Length of body 2.2 to 10.8 mm.; breadth (with wings expanded) : 4.4 to 12.8 mm.

Over 70 males and more than 100 females were collected by my assistant Mohamed Tewfik Effendi between the 12th and 17th June

in Wadi Rishrash, and between the 17th and 20th June 1932 in Wadi Garrareyat, both Wadies about 50 kilometres South-East of Helouan; also during July of the same year in W. Rishrash. Previously a single male specimen was known from Egypt, collected by Mohamed Kassem Effendi in Wadi Gharagid on June 25th 1925 and belonging to the collection of the Entomological Section, Ministry of Agriculture. The large series obtained by Tewfik Effendi throws considerable light on our meagre knowledge of this hitherto obscure genus. Moreover Tewfik Effendi's intelligent collecting and his initiative has allowed me to establish the synonymy of most of the described species with Becker's type. My assistant, when collecting the above flies met with several pairs *in copula*. Each couple caught together he placed in a separate killing bottle, and when setting them he marked each specimen of a couple with a distinctive sign on the disc of bristol bearing the fly, and the result of this very simple but nevertheless clever procedure has enabled me to spot at a glance the authenticity of many couples. Among these, one of the smallest males, measuring 2.8 mm. in length, corresponding entirely with Nurse's species *griseohirta* was coupled with a large pale coloured female measuring over 10 mm. in length and corresponding with Becker's species *Zarudnyi*. Another dark coloured (with black face, etc.), small male (3.5 mm.) was attached to a specimen identical with *pellucida* Paramonov, and several other males varying somewhat in size and in colour were found copulating with typical *Lichtwardti* Beck. From the above rich material studied, it may be definitely concluded that the size and colour in both sexes is no criterium in distinguishing between the species, but the nature and colour of the pubescence is of fundamental importance.

Mohamed Tewfik Effendi tells me that all the specimens of this species including the four pairs *in copula*, were captured by him while on the wing, and that he has not observed a single individual resting on the ground nor on plants. He has spent about five consecutive days in his search for the greater part of the large series collected in Wadi Rishrash; moreover he certifies to me that their flight resembles curiously that of *Omphralidae* and is always effected at a height of approximately a metre above the ground. It is also of interest to record that their capture took place without exception, between 1-3 p.m., during the hottest time of the day.

HETEROTROPUS

(Loew, 1873, Besch. europ. Dipt., III, 180-183, Bemerkg.)

SYNONYMY :

Malthacotricha Beck. (1907), *Annu. Mus. Zool. Acad. St. Petersburg*, XII, 253-317.

TYPE OF THE GENUS :

albidipennis Lw. (1873), *loc. cit.*, 108.

Small to medium-sized flies of black, yellow or black and yellowish colouration, much resembling *Therevidae* in habitus, and distinguished by the wing venation.

Head, about as broad as the thorax and when seen from above much broader than long, but when viewed from in front, much more rounded; eyes in the male meeting, but never for a long distance, or very approximated and almost meeting, always with the facets of distinctly more than the upper half enlarged, except about the upper, inner and hind corners (on both sides of the ocellar tubercle) where they form a small area of decidedly smaller facets; in the female, the eyes which are much smaller and with all the facets of uniform size, are always widely separated and leave a very broad frons; face more or less protruding forward somewhat short nose-like with the posterior margin (upper mouth margin) often bent upwards or projecting forward like a platform and the rather broad side-cheeks possess a more or less deep, undulated furrow, part of which may be very close to the anterior eye margin; the face may possess one or two transverse deep furrows which almost reach the eye margins; the broad mouth margin is directed anteriorly (not ventrally as in *Alloxytropus*) and the insertion of the antennae is distinctly above the middle of the head; proboscis stout, quite short or exceeding twice the length of the head, with well developed labellae and elongate, narrow, unsegmented palpi. Antennae porrect and very approximated at the base with the two short basal segments almost equal in length; third segment usually about twice as long as the two basal segments together and varying from broad lanceolate to elongate conical or pointed awl-shaped and ending by a short, often well distinct two-segmented style (?) bearing a minute apical bristle. The pubescence on the head is short and never dense.

Thorax varying from almost entirely black and very shining to yellow with the three longitudinal stripes on the dorsum broad, dark brown or blackish and strongly contrasting with the paler colour of the background and sides; the pubescence varies from elongate and upstanding to quite

(?) It is surprising that Engel (1937, *loc. cit.*, p. 156) in his account of the general characters of the genus, which are as a rule correct and most reliable, should have neglected this rather important detail of the structure of the style, which in several of our Egyptian species studied by him, show two distinct segments. Paramonow (1929, *loc. cit.*, p. 131) in his original description of *H. aegyptiacus*, correctly describes the third segment as « schmal, lang, deutlich zweimal länger als die beiden ersten zusammengenommen, mit langem zweigliedrigen Griffel; das erste Glied desselben quadratisch, das zweite lang, konisch, 4 mal länger als das erste », and yet Engel again, when redescribing the same species on p. 150, writes « das 3 Glied ± gebraunt ».

short and adpressed on the disc but always sparse; pleurae usually yellow or pale with large brown or blackish spots and with sparse, soft pubescence mainly on the mesopleura.

Wings hyaline but sometimes with a weak although distinct opaque milky white tinge due to minute microscopic pubescence and with a rather constant venation. The Sc extends all the way to the costa; fork R_4 , R_5 very short with the end of the veins not parallel; r-m cross-vein always situated well beyond the middle of the very short and somewhat hexagonal 1st M_2 cell; the latter emits three M veins from its outer margin, M_1 being more approximated to M_2 than M_3 from M_2 ; 1st A cell always closed at a small distance from the lower margin and consequently with a short petiole; anal, axillary lobes and squamae well developed; halteres with a large knob.

Legs somewhat long and frequently possess the apical tarsal segment broadened; the pubescence is usually short, soft and inconspicuous and the tibiae are unarmed, although minute spurs are often present on the middle tibiae; claws and pulvilli normally developed.

Abdomen conical and, in the female usually broader, and dorsoventrally flattened; sexual dimorphism is apparent in the colour as well as in the design, and also the pubescence in the male is usually much longer, often quite tufted, particularly on the sides. Male hypopygium well exposed, very large, broader than the posterior segments of the abdomen and consisting of a short, broad, triangular pair of dorsal lamellae, of two very strong, broad, two-segmented median claspers and of a pair of very short and very narrow ventral lamellae. Ovipositor spiny.

Nothing is known so far, of the early stages of this genus. The adults are lovers of heat, and like the species of *Alloxytropus* and *Mariobezzia* in Egypt, have never been seen or captured except between 1 and 4 p.m. on flowers of *Zygophyllum*, as well as on small annual desert *Compositae*, often in days of strong « Khamassin » (South wind) when the temperature was above 45° C. in the shade ! Paramonow states that he has captured his species *amnophilus*, a little to the North of the State of Aschabad in Transcaspia, in enormous numbers on flowers. The same author also records the capture of *sabulosus* Param. on flowers of *Statice*.

Paramonow (1929, *loc. cit.*), records some twenty two species, including one sub-species from all over the world and Engel (1937, *loc. cit.*) after having dropped several names from the above list to the rank of synonymy, gives the description of some twenty six species (including sub-species or varieties) from the Palaearctic Region. From what is demonstrated by the material which I am able to study, and which originates from Egypt, the colour and markings vary so considerably in specimens of the

same species that the study and description of species from single or even from half a dozen specimens, is to be deprecated. It is true that one often possesses no alternative, particularly in view of the desirability of providing a foundation for future work. Many species from Dr. Engel's list have been described from single specimens, often of one sex, so that if a richer material was available, I feel confident that one would be compelled to drop a good number of species to the synonymous or varietal ranks.

From Egypt, I am able to record and describe seven species so far, but unfortunately *bisglaucus* Bez., *elephantinus* Séguy, *magnirostris* Bez. and *sabulosus* Param. are represented by males only, while the male of *H. xanthothorax* nov. spec. is unknown.

TABLE OF SPECIES

Males

- 1 (8) Eyes meeting for a more or less long space.
- 2 (3) Thorax and scutellum almost entirely dull black, except the postalar calli and the margin of the scutellum obscure yellowish-brown; abdomen uniformly yellowish-white with rather long, dense white pubescence; apical tarsal segment normal, hardly broader than the preceding segments **elephantinus SEGUY**
- 3 (2) Thorax yellow, with the very broad blackish longitudinal stripes on the dorsum conspicuous or much less so owing to dense pale tomentum and very short, closely adpressed pale pubescence, in addition to the usual longer, erect hairs; scutellum uniformly yellow; abdomen never unicolourous yellowish-white, apical tarsal segments distinctly (sometimes conspicuously) broader than the preceding segments.
- 4 (5) Broad blackish longitudinal stripes on dorsum of thorax very conspicuous, the median stripe being separated on its entire length from the side stripes on either side by a narrow yellow stripe; antennae with the two basal segments yellow, often obscure brownish dorsally and the third segment more or less dark yellowish-brown and blackish apically; apical tarsal segment distinctly (but not conspicuously) broader than the preceding segments **aegyptiacus PARAM.**
- 5 (4) Broad blackish longitudinal stripes on dorsum of thorax obscured by tomentum and pubescence (as described above) and the yellow ground colour separating the median stripe from the side stripes is apparent only on the posterior third of the disc; antennae entirely yellow; apical tarsal segment distinctly to conspicuously broader than the preceding segments.

- 6 (7) Abdomen yellow, not shining, with a very broad, transverse, somewhat rhomboidal blackish spot on each of the second to sixth segments and whose lower border does not touch the segments' lower margin; apical tarsal segment distinctly (but only a little) broader than the preceding segments **bisglaucus BEZ.**
- 7 (6) Abdomen yellow, very shining, with a very broad black spot on each of the second to sixth segments and occupying most of the segment but whose lower border not touching the lower margin and which is emarginate in the middle, as well as at both sides, leaving a median triangular spot and the lower outer corners of the segment yellow; apical tarsal segment conspicuously broadened (much more so than in the other six species) **sabulosus PARAM.**
- 8 (1) Eyes separated by a narrow but very distinct space.
- 9 (12) Thorax very shining black, with or without four small inconspicuous yellowish-red spots on the anterior and posterior margins; scutellum entirely shining black.
- 10 (11) Thorax with two small inconspicuous yellowish-red spots on the anterior border, near the humeral calli and two equally inconspicuous yellowish-red oval spots on the hind border immediately in front of the two basal corners of the scutellum; face with longish, outstanding white hairs; wings with a dark brown stigma (near apex of vein R_1); abdomen shining black but with the basal segment yellowish-white except on the sides; second to sixth abdominal segments with yellowish-white hind borders forming two admedian triangular to oval pale spots on each segment **stigmaticus BEZ.**
- 11 (10) Thorax entirely shining black without spots; face bare; wings without a dark stigma; abdomen shining black with extremely narrow, inconspicuous yellowish-red hind margin to all the segments **magnirostris BEZ.**
- 19 (9) Thorax yellow with the broad blackish longitudinal stripes on the dorsum apparently united on their entire lengths and obscured by dense yellowish tomentum which gives the dorsum a uniform dull greyish-brown appearance; scutellum shining yellow on rather more than the basal half and more or less extensively black apically **maculiventris BEZ.**

Females ⁽⁸⁾

- 1 (6) Face shining pale yellow to reddish-yellow with only occasionally small obscure brownish areas; body yellow, thorax with blackish

⁽⁸⁾ The females of *H. bisglaucus* Bez., *H. elephantinus* Séguy, *H. magnirostris* Bez., and *H. sabulosus* Param. are unknown.

- to pale brownish stripes on the dorsum and abdomen with black spots or black stripes; wings without a dark stigma.
- 2 (3) Proboscis longer than twice the length of the head; abdomen with a median row of subcylindrical to triangular black spots on the upper border of the segments and a lateral row, on each side, of broader, subquadrate black spots; smaller species (3.4-4.5 mm.) **maculiventris BEZ.**
- 3 (2) Proboscis at most one and a half times the length of the head; abdomen with a more or less broad transverse blackish band on the upper border of the second to fifth or sixth segments, whose lower margin may be straight (parallel with the upper border of the segment) or produced in the centre and sides forming obscure triangular markings but never sharply defined rows of spots; medium sized species (4.0-8.3 mm.).
- 4 (5) Antennae with the third segment narrow elongate and quite twice as long as the two basal segments together; the three longitudinal stripes on dorsum of thorax very dark brown to blackish with sharply defined borders **aegyptiacus PARAM.**
- 5 (4) Antennae with the third segment conical and not longer than one and a half times the length of the two basal segments together; the three longitudinal stripes on dorsum of thorax clay colour and edged with a narrow amber yellow line .. **xanthothorax NOV. SPEC.**
- 6 (1) Face entirely shining black; body shining black with yellow or yellowish-red stripes and spots on the thorax and abdomen respectively; wings with a dark brown stigma **stigmaticus BEZ.**

Heterotropus aegyptiacus PARAM.

Paramonow (1929), *Mém. Acad. Scienc. Ukraine*, XI, livr. 2, 129-131; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 158, 160, f. 79, Tab. IV, f. 54).

DIAGNOSIS :

A medium sized (one of the largest of the genus, in Egypt) yellow species with black transverse bands on the abdomen, whose female is not unlike that of *xanthothorax nov. spec.* in general colouration, but distinguished from it and from other species by the elongate, narrow and often blackish third antennal segment, by the broad blackish or blackish-brown longitudinal stipes on the dorsum of the thorax and by the colour of the legs.

DESCRIPTION :

♂ : *Head* (Pl. VI, figs. 93, 94 and 95) entirely more or less pale yellow but sometimes the ocellar tubercle with a broad v-shaped black spot on the two posterior ocelli, a black triangular spot on each side of the occiput and touching the upper hind corner of the eye and occasionally the chin and hind jowls are obscure dark brown; centre of face rather deeply concave, with two or three transverse wrinkles and bearing very sparse, short, soft but outstanding white pubescence which extends down on the broad side-cheeks; the rest of the white pubescence on the head consists only of some short sparse hairs on the occiput and of some more numerous and somewhat longer and softer hairs on and about the chin; eyes distinctly meeting for a short space, and the sharp dividing line between the larger and smaller facets is situated a little below the nose-like prominence of the face; proboscis black, but often obscure brownish-yellow about the base, particularly above and below, and a little longer than the length of the head (including the length of the antennae); palpi rather pale yellow with very short erect whitish pubescence; antennae with the two basal segments yellow but more or less extensively obscured brownish dorsally, and the third segment from brown and much darker towards the apex to entirely blackish; occasionally all the segments may be blackish-brown; first segment cylindrical and a little longer than the second cup-shaped segment; third segment twice as long as the two first segments together, narrow, rounded and very gradually tapering to the apex where it ends in a longish (comparatively), two-segmented style; basal segment of style short, quadrate but with rounded margins, second segment narrow conical, from three to four times as long as the second and ending in a minute whitish hair.

Thorax (Pl. VI, figs. 96, 97 and 98) yellow, with the three black longitudinal stripes on the dorsum very broad, well defined, in which the median stripe is separated from the side stripes, on its entire length, on either side by a narrow yellow stripe, but all the stripes with a distinct old gold shimmer, owing to the presence of dense, very short and closely adpressed yellow pubescence; the median blackish stripe, whose upper margin is situated on the upper border of the disc, and which is cylindrical above, is always triangular or arrow pointed-shape below, and its posterior (pointed) margin may be situated at a rather long distance from the disc's lower border (Pl. VI, fig. 97) or it may extend in a prolonged narrow blackish line to the lower border of the disc; the blackish side stripes are a little shorter above than the median stripe, broader above than below, and each with a short semi-lunar yellow indentation at the transverse suture, and gradually tapering below to a rather broad, blunt point touching the inner lower angle of the postalar callus; occasionally the lower extremities of the side stripes are quite broad

and instead of ending at the postalar callus, curve inward stripe-like, all around the posterior border of the scutum, and the lower extremity of the median stripe meets this marginal blackish stripe in the centre; all the calli are yellow; notopleural suture black and this color may extend back in a rather broad longitudinal stripe; on the entire side margin of the disc and above the wing base; the pubescence (other than the very short, dense, closely adpressed hairs mentioned above) is erect, short, sparse and all whitish or pale yellowish; pleurae yellow except the mesopleura with a broad black spot on the lower front corner and all the lower border of the pleurae and the ventral side black; the sparse, soft pubescence on the mesopleura is somewhat longer than on the dorsum and all white; scutellum entirely yellow to reddish-yellow with sparse, short, upstanding pale yellowish pubescence.

Wings hyaline with a pale yellow normal venation and often the stigma is somewhat conspicuously yellow; 1st A cell closed at a very short distance from the lower wing margin and with a very short petiole; squama with a pale yellow margin and a short, slight white fringe; halteres with a yellow stem and a very pale yellowish-white knob.

Legs almost yellow to pale reddish-yellow except the apex of the metatarsi, the apical half of the second tarsal segment, the entire third tarsal segment except the base and the rest of the tarsal segments blackish; usually also the apex of the hind tibiae is obscure brownish dorsally; basal third to half of coxae black, and in addition, on the ventral side the extreme apex of the trochanters and extreme base of the femora is black; apical tarsal segment a little broader than the preceding segments; the pubescence is all whitish, short but stiff (although not coarse) on the tibiae and a little longer on the femora; claws black but rather extensively reddish-yellow about the base; pulvilli small, pale yellowish.

Abdomen (Pl. VI, figs. 99 and 100) black, not very shining, with a pale yellowish-white hind border to almost all the segments, which broadens out outwardly on both sides forming triangular pale markings on the lower outer corner, and which vary considerably in size; usually the pale yellowish-white border on the posterior margin of the first segment is extremely narrow and broadening out only at the extreme outer sides of the segment so that the triangular pale spots are more or less hidden (owing to the deflexed sides) and ill-apparent, but from the second to sixth segments, the pale transverse stripe on the lower border of each segment is broader, conspicuous, and rapidly widening out on both sides, so that the triangular pale markings cover the greater portion of the sides of the segment and this pale colour rapidly increasing in extent towards the apex of the abdomen until, on the fifth and sixth segments it covers the entire outer thirds, leaving only a

median, rhomboidal black spot (Pl. VI, fig. 96); occasionally the yellowish-white colour is considerably reduced and the abdomen is almost entirely black with an extremely narrow pale posterior border to all the segments and a small, ill-defined yellowish spot on each side and on the posterior border of each of the fourth to sixth segments, those on the fifth and sixth being somewhat triangular (Pl. VI, fig. 97); the pubescence is short, sparse on the dorsum but a little longer and much more dense on the sides (particularly of the basal half), and all white; venter varying from all pale yellow to blackish on the basal half with the lower border of the segments reddish-yellow and on the apical half or so yellow but paler towards the apex; hypopygium (Pl. VI, fig. 99) with the dorsal lamellae shining black above but with the sides and apical margin pale yellow, bearing very short, sparse, whitish pubescence and with the two postero-apical sides prolonged into two rather long, narrow, flat, somewhat spine-shaped processes, which are feebly curved inwards and upwards; these processes are blackish at the apex, and bear very short, sparse white hairs; basal segment of median clasper very strong, broad and bearing sometimes a dense fringe of longish white hairs apically which are usually so dense that they hide the narrow hook-shaped and apparently bifid second segment and which is always directed inwards (strongly elbowed); both segments of claspers bear numerous rigid white hairs; ventral lamellae very short, with a triangular or rounded margin and sparse longish white hairs.

♀ : Rather distinct from the male being also larger, the proboscis shorter and of a general olive ochre colour but the design on the dorsum of the thorax, the wings and the legs are very similar.

Head (Pl. VI, figs. 100 to 103) more or less pale yellow as in the male but of a more shining waxy aspect and the face as well as the side-cheeks are broader; the very broad frons and vertex possess undulating black transverse stripes which are so variable in size and shape that they are not alike in two specimens out of the six (see Pl. VI, figs. 100-102). The very broad longitudinal black stripes on the dorsum of the thorax vary also as in the male but are usually less dark, being sometimes of a dark reddish-brown colour and more distinctly edged with a brownish-red line. *Abdomen* (Pl. VII, figs. 104-106) yellow, usually the second segment with a very broad and the third to fifth each with a much narrower transverse black band on the upper border (Pl. VII, fig. 104) but these black bands are also very variable as they may be very broad on all the segments with their lower margin produced into a median triangular marking, or reduced into a small rounded median spot near the lower border of the first segment, three large (the middle by far the largest) spots on the upper border of the second and one median triangular spot on the upper border of each of the third to

fifth or sixth segments (Pl. VII, figs. 105 and 106); the pubescence on the thorax and abdomen, which is all whitish is much less dense and shorter than in the male; ovipositor yellow.

♂ Length of body : 4.5-6.5 mm., of proboscis : 1.2-2.5 mm.; breadth (with wings expanded) : 7.2-10.5 mm.

♀ Length of body : 5.8-7.3 mm., of proboscis : 1.1-1.6 mm.; breadth (with wings expanded) : 9.-11 mm.

Six male and six females, including the types are known so far of this pretty and interesting species; the males originate from Wadi Um Girfan (22.IV.), Kafr Hakim (14.IV. and 6.V.), Abu Rawash (1.V.), Mansouriah (2.V.) and one from Wadi Rishrash (29.III.); the females have been collected by me in Wadi Girfan and Bahr el-Gazal (22.IV., four specimens) and in Gebel Elba (end of February, 2 specimens). *H. aegyptiacus* has not been recorded from any other country.

Heterotropus bisglaucus BEZ.

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 183, 184, 1; Paramonow (1929), *Mém. Acad. Sc. Ukraine*, XI, livr. 2, 128, 130, 137; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl.: 158; 165, Tab. IV, f. 52.

DIAGNOSIS :

A small species not unlike *H. maculiventris* Bez. in colour (in the male) but distinguished by the entirely yellow antennae, the legs which are all yellow except the two or three apical tarsal segments blackish and by the eyes of the male which distinctly meet for a short space (somewhat longer than in the preceding species).

DESCRIPTION :

♂ : *Head* almost all yellow except most of the occiput and the ocellar tubercle about the centre and somewhat obscure blackish posteriorly; eyes distinctly meeting for a short space but which is rather longer than in the preceding species; frons and face small and bare like the very narrow side-cheeks; the pubescence consists of rather numerous but very short erect yellowish hairs on the occiput; proboscis very short, being much shorter than the length of the head and yellow, but black ventrally only; antennae entirely yellow, bare and the third segment is flattened but elongate conical, and twice as long as the two first segments together, but rather darker than the latter and possessing a distinct orange colour; first segment of style very minute and about one fourth the length of the second segment which bears apically a very short but unusually stout hair.

Thorax yellow but blackish-brown on the dorsum owing to the three very broad, black longitudinal stripes being united except on the lower fourth and where the colour of the background between the median and side stripes forms two admedian oval yellow spots; the brownish colour is due to yellow tomentum and dense, very short and closely adpressed yellow hairs which cover the dorsum, in addition to the usual erect but short and fairly dense pale yellowish pubescence; when viewed in profile, the sides are all yellow except for a rather conspicuous rounded black spot a short distance behind the transverse suture which appears to be isolated (owing to being black and shining), but which, in reality is a median extension of the outer margin of the side stripe and which is almost bare (of tomentum and pubescence); pleurae yellow above and blackish on the lower half or more and with sparse but longish, soft, outstanding whitish pubescence on the mesopleura; scutellum entirely yellow with short erect, not dense yellowish-white pubescence.

Wings entirely hyaline with a very pale yellow normal venation; 1st A cell closed at a comparatively long distance from the lower wing margin and consequently with a longish petiole; squamae with a very pale yellow margin and a fairly dense, short, white fringe; knob of halteres yellowish-white and the stem yellow, somewhat darker towards the base.

Legs entirely yellow except the two apical segments of the tarsi black and the third tarsal segment more or less dark brown about the apex; the pubescence is fairly dense, all whitish and short but on the femora the hairs are quite longish and outstanding; apical tarsal segment distinctly (but not conspicuously) broader than the preceding segments; claws reddish-yellow but black at the tip; pulvilli about as long as the claws and yellowish-white.

Abdomen yellow with a very broad transverse blackish stripe on the base of most of the segments, which are somewhat rhomboidal in shape and so large, particularly near the base, that they make the first four segments appear blackish with the lower margin and lower outer third yellow; first segment blackish with a narrow yellow lower border; second to sixth segments each with a blackish stripe as described above and the stripes becoming smaller and narrower towards the apex; seventh segment with a large median bilobed brown spot; the pubescence is all whitish, fairly dense and rather long, especially about the sides; venter yellow but the two or three basal segments obscure brownish-black with the lower border yellow and the pubescence is most insignificant; hypopygium (Pl. VII, fig. 107) entirely pale yellow and with very short, erect pale yellowish pubescence; dorsal lamellae shield-like, conical, without any lateral or postero-apical prolongations but ending by two very short and small median papillae; basal segment of median claspers very strong, broad, with the long wavy fringe of longish pale hairs situated on the posterior margin; second segment of claspers broad at the

base and ending apparently by a narrower, but rather stout cylindrical apex: this second segment of the claspers is; as usual, strongly elbowed.

♀ : Unknown.

♂ : Length of body : 4.5 mm.; of proboscis : 0.6 mm. ; breadth (with wings expanded) : 8 mm.

There is no other record of this species, from Egypt or elsewhere, since the capture by the late Mr. Storey of the unique male specimen, Bezzi's type, from Maadi on March 23rd, 1914, and which is in my collection. My description is made from the type; it will be found to disagree in many respects with Dr. Bezzi's which, I believe was made in a somewhat hasty and compendious manner. Dr. Engel (1937, *loc. cit.*) to whom I had sent the type, had already made a few corrections.

Heterotropus elephantinus SEGUY

Séguy (1929), *Encycl. Entom.*, t. V, fasc. 2, 62; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 157, 166, f. 85.

DIAGNOSIS :

A medium sized species (smaller than *aegyptiacus* Param.) at once distinguished by its uniformly pale yellowish-white abdomen and its almost entirely dull black thorax and scutellum.

DESCRIPTION :

♂ : *Head* (Pl. VII, figs. 108 and 109) with the eyes meeting only for a very short space; frons yellow but obscure blackish above, on the very narrow angle (of the triangle) immediately below the separation of the eyes; face and the somewhat narrow side-cheeks yellow but the latter, which possess the longitudinal furrow unusually deep, are obscure blackish below and all about the chin; ocellar tubercle blackish-brown; occiput almost all blackish except on the two lower outer corners yellow; the pubescence on the head is practically inexistant as it consists of sparse, very short, erect whitish hairs on the lower; somewhat puffed out part of the occiput and about the chin; proboscis a little longer than the length of the head, black but rather extensively yellowish about the apex, dorsally; palpi yellow; antennae yellow but all the segments are obscure brownish dorsally; third segment elongate conical in shape and only a little longer (about one and a half times) than the two basal segments together; basal segment of style so minute that it is difficult to distinguish under high magnification and about one third the length of the conical apical segment which, as usual, ends by a minute pale sensory hair.

Thorax yellow, uniformly dull black but the humeral and postalar calli are broad, reddish-brown and the pubescence is sparse, very short but coarse and pale yellowish; pleurae shining blackish except for a fairly broad and long yellow stripe on the upper border, extending from below the notopleural suture to behind and beneath the wing base; the pubescence is apparently inexistant; scutellum blackish but obscure dark reddish-brown about the apex and apparently bare.

Wings feebly but distinctly opaque milky white, with a very pale yellowish ill-marked but normal venation except the costa from just before the apex of the wing down to a little after 1st A cell, brown; stigma distinctly although feebly tinged yellowish; 1st A cell closed at a small distance from the lower wing margin and consequently with a short petiole; squamae with a pale yellowish-white margin and a short white fringe; stem of halteres yellow except about the apex yellowish-white and of the same colour as the knob.

Legs yellow with all the tarsi black except the metatarsi yellow at the base; coxae dark reddish-brown; trochanters yellow but obscure blackish at the apex; apical tarsal segment normal; pubescence extremely short and all whitish; claws reddish-yellow but black at the apex; pulvilli brownish.

Abdomen uniformly pale yellowish-white or cream colour and clothed with rather dense and longish pure white pubescence which is adpressed on the dorsum but outstanding about the sides; venter uniformly yellow and bare; hypopygium (Pl. VII, fig. 110) pale yellow with very short yellowish-white pubescence; dorsal lamellae with a broad rounded apex and bearing, on the ventral side near the base two hook-shaped and deeply curved processes; basal segment of claspers short but very broad; second segment of claspers strongly elbowed, remarkably broad and long, much larger and stronger than in all the other species.

♀ : Unknown.

♂ : Length of body : 5.5 mm., of proboscis : 1.5 mm.; breadth (with wings expanded) : 9.5 mm.

Only a single male specimen is known so far, from Egypt of this very distinct species; it originates from Wadi Rishrash, 15.VI.1932. The original description by Séguy was made from a male specimen collected by Prince Sixte de Bourbon-Parma at Komadougou Yobé in the lake Tchad district.

***Heterotropus maculiventris* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 184, 185, 2; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, *Bombyl.*, 157, 159, 169., fs. 89, 90 and 91.

SYNONYMY :

Tewfiki Param. (1929) *nec* Effl. in litt., *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 130, 131, 147.

DIAGNOSIS :

A small species distinguished in the male by the eyes which are distinctly separated by a narrow brownish or yellow line, the yellow thorax with the broad blackish longitudinal stripes all united on the dorsum and making the latter appear of a uniform dull greyish-brown colour, the yellow scutellum whose apical third to half is black, the yellow abdomen with transverse blackish stripes on the base of most of the segments which are produced into a median row of large triangular black spots and often also into a lateral row, on each side of subquadrate black spots, and in the female by the proboscis which is, as in the male longer than twice the length of the head and by the black design on the yellow abdomen which rather resembles that of the male.

DESCRIPTION :

♂ : *Head* (Pl. VII, figs. 111 and 112) with the eyes distinctly separated by a narrow space which is yellow or brownish on the upper half (immediately below the front ocellus) and blackish below (on the upper third of the narrow triangle), but the rest of the frons, the face and all the upper two-thirds of the rather broad side-cheeks are yellow; lower third of genae with a more or less broad blackish spot but the jowls yellow and the chin as well as all the middle part of the lower side of the head obscure blackish; ocellar tubercle brown (rather pale) or all blackish; occiput almost all blackish except on the two lower outer corners yellow; the pubescence is all whitish, very short and sparse on the face and cheeks, a little more dense and upturned on the occiput, and even longer but softer on the lower part of the head as usual; proboscis blackish and about two and a half times as long as the length of the head; palpi pale yellow with some longish, erect white hairs; antennae with the two basal segments varying from all yellow to yellowish only below and brownish above, or all obscure blackish; third segment elongate conical in shape, about one and a half times the length of the two basal segments together and usually entirely blackish; basal segment of style so minute that it is only just distinguishable under high magnification, short cylindrical and about one fourth the length of the second conical segment which ends, as usual, by a minute, stumpy, pale sensory hair.

Thorax yellow on the sides, uniformly blackish-grey on the dorsum and with a distinct brownish tinge (owing to the three broad blackish longitudinal

lines all united with each other and covered by dense greyish-yellow tomentum), and with four small, ill-defined shining backish spots, two on the anterior border, one immediately behind and touching each humeral callus, and the other two, which are larger than the former, touching each the inner lower angle of each postalar callus; these two latter black spots show a strong tendency to broaden out and sometimes they cover most of the postalar calli; the pubescence is sparse; very short erect and all whitish; notopleural suture blackish and rather contrasting with the broad yellow margin of the scutum and the broad yellow upper margin of the mesopleura; pleurae extensively yellow above and obscure blackish below, with sparse outstanding soft white pubescence on the mesopleura; scutellum shining, usually yellow with the apical third black, but sometimes the black colour may extend on the entire apical half, and bearing sparse upstanding whitish or very pale yellowish pubescence.

Wings (Pl. VII, fig. 113) hyaline with a very pale yellow; normal venation except the costa just before the apex down to a little after the tip of 1st A cell, and the apical half of most of the longitudinal veins (the R and M sectors) brown; 1st A cell closed at a short distance from the lower wing margin and consequently with a small petiole; squamae with a whitish margin and a short white fringe; halteres ivory white but the stem usually yellowish towards the base.

Legs yellow with the tarsal segments black except the metatarsi yellow but blackish towards the apex and the second tarsal segment with the basal half yellow and the apical half blackish; usually also the third tarsal segment is yellowish at the extreme base; sometimes the posterior femora and tibiae are obscure brownish dorsally near the apex; coxae black but yellowish about the apex; trochanters yellow and with a small black spot at the apex ventrally; the pubescence is all whitish, but not dense on the femora where it is longish and outstanding, and shorter and less erect on the tibiae; apical tarsal segment only a little broader than the preceding segments; claws reddish-yellow and black at the apex; pulvilli normal, pale brownish-yellow.

Abdomen (Pl. VII, figs. 114 and 115) with the basal segment yellow, but with a large transverse triangular blackish spot on each side, which leave almost the middle third and the entire upper and lower borders yellow, i.e. with the base of the triangular blackish marking touching the lateral borders of the segment; second to sixth or seventh segments each, with a transverse black stripe on the base which is produced in the centre into a large rounded, subcylindrical or triangular spot and often also, on each side, into a smaller rounded to sub-quadrate spot; the black stripe on the base of the second segment is always much broader than on the consequent segment and the stripes become narrower towards the apex of the abdomen, so that often on

the fourth to sixth segments the one (median) or three (median and lateral) rows of black spots appear to be isolated; the pubescence is all whitish, very short, adpressed and rather sparse on the dorsum but quite long, erect and rather dense on the sides; venter obscure blackish-brown with the lower border of the sternites yellow and bare; hypopygium (Pl. VII, figs. 116 and 117) with the dorsal lamellae shining dark reddish-brown above but with all the margins (except the base) yellow, with very sparse, short pale yellowish pubescence and somewhat broad conical in shape; basal segment of claspers cylindrical, being comparatively longer and narrower than in the other species, yellow but more or less obscure brownish on the outer surface towards the base; apical segment of claspers strongly elbowed as usual, broad triangular in shape, pale yellow but with a very small spine-shaped blackish tip deeply curved backwards, and with short, rather dense, and evenly arranged pale yellowish pubescence all over the sides.

♀ : Somewhat distinct from the male and the general whitish pubescence which is particularly noticeable on the abdomen is much sparser and shorter.

Head (Pl. VII, figs. 118-120) yellow with large black conspicuous spots on the face, frons, vertex and occiput which vary remarkably in almost every individual or the spots may be totally absent; proboscis varying much in length from hardly longer than the length of the head to as long as in the male.

Thorax (Pl. VII, figs. 121, 123 and 124) usually with the three broad blackish longitudinal stripes on the dorsum apparent, and the median stripe separated on its entire length, from the side stripes, on either side, by a narrow yellow stripe; median stripe either ending a little after the middle of the disc or extending all the way down to the posterior margin; thorax often also as in the male; scutellum varying from entirely yellow to yellow with a more or less large rounded black spot on the base, often giving the impression that this blackish colour is an extension of the median longitudinal black stripe on the mesonotum; sometimes the scutellum is yellow with a small or large median isolated blackish spot.

Legs usually as in the male but occasionally all obscure blackish-brown.

Abdomen (Pl. VII, figs. 122-124) with the design somewhat as in the male, but the transverse black stripes on the base of the second to sixth or seventh segments showing a greater tendency to disappear and replaced by three rows of spots; these stripes and spots, or spots alone, vary also considerably in size and shape in almost every individual as shown in Plate VII, figs. 122-124; ovipositor yellow but obscure dark reddish-brown above (sometimes blackish), with very short erect yellowish pubescence and with a row of four reddish-yellow spines on either side.

♂ Length of body : 3.4-4.5 mm., of proboscis : 1.6-2.5 mm.; breadth (with wings expanded) : 5.9-6.6 mm.

♀ Length of body : 4.0-5.5 mm., of proboscis : 1.2-2.8 mm.; breadth (with wings expanded) : 7-8 mm.

Six males and ten females, including the types, of this species are known, so far from Egypt. All the six males originate from Serapeum near Ismailia (9.IV.1926) but the females appear to possess a much wider area of distribution. Bezzi's type was collected by me in Wadi Hoff on April 1922 but I have also captured a specimen at Kafr Hakim (7.IV.1926), one specimen at Kerdasah at the end of April 1930, two specimens in Wadi Askhar at the end of March 1928, two specimens at Ein Gedeirat (Kossayema) on April 20th 1938 and three specimens were collected at Serapeum at the same date as, and with the males.

H. maculiventris has not been recorded from any other country.

Heterotropus magnirostris BEZ.

Bezzi (1926), *Bull. Soc. Roy. Entom. Egypte*, 1925, 248, 251, 3; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 125, 143; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 170.

DIAGNOSIS :

A small species with the eyes in the male separated by a narrow black line, which is distinctly wider than in *stigmaticus* Bez., distinguished from the latter and from all the other species by the uniformly shining black body except the extreme lower margin of the abdominal segments reddish-yellow, the hyaline wings without a dark stigma and by the entirely black femora.

DESCRIPTION :

♂ : *Head* (Pl. VIII, figs. 125 and 126) entirely shining black, except on the sides of the lower border of the frons yellow or reddish-yellow, as in *stigmaticus* Bez., but the short, pale yellowish pubescence is very insignificant, being quite absent on the face, side-cheeks and jowls and occurring only, very sparsely, on the ocellar tubercle, the upper margin of the occiput and on the lower third of the back of the head; the eyes are separated by a short narrow black space but which is distinctly broader in *stigmaticus* Bez.; proboscis and palpi black, the former about twice as long as the head and the latter apparently bare; antennae blackish but the two first segments at the extreme apex, and the third segment about the extreme base, yellowish; first segment about one and a half times the length of the second cup-shaped segment; third segment almost cylindrical and only apically narrowing to a truncate point which bears a remarkably narrow and short style.

Thorax and scutellum entirely shining black with the pale yellowish pubescence much sparser and shorter than in *stigmaticus* Bez. and without design or reddish-yellow spots; notopleural suture yellowish-red; pleurae shining black with the upper margin of the mesopleura broadly yellowish-red as well as the anterior and posterior margins of the pteropleura similarly coloured.

Wings entirely hyaline with a pale yellow normal venation; 1st A cell closed at a short distance from the lower wing margin and consequently with a short petiole; squamae with a yellowish-white margin and a short slight white fringe; halteres with a yellowish-brown stem and a cream coloured knob.

Legs with the coxae and femora entirely black, shining; tibiae very pale yellowish except at the base and about the apical fourth or fifth blackish; tarsi blackish except the basal half of the metatarsi pale yellowish; the pubescence is pale yellowish or whitish, very short, sparse and insignificant; claws reddish-yellow on the basal half and black on the apical half; pulvilli very pale brownish.

Abdomen shining black with the extreme lower margin of all the segments reddish-yellow and with this latter colour somewhat expanded on the centre of the sixth and seventh segments thus forming an oval but rather ill-defined reddish-yellow spot on the base of the genitalia; the pale yellowish-white pubescence is not dense, almost inexistant about the dorsum but somewhat long on the sides (distinctly less dense and shorter than in *stigmaticus* Bez.); hypopygium (Pl. VIII, fig. 127) shining black (except for the reddish-yellow spot on the base, described above) but the extreme apex of the dorsal and ventral lamellae is reddish, with sparse longish pale hairs about the base (of the dorsal lamellae) and with very short stiff reddish hairs about the apex; dorsal lamellae in the shape of two short plates with rounded extremities and without any processes or prolongations; basal segment of median claspers very strong, broad conical and quite bare; second segment of claspers very broad, triangular and possessing a dense fringe of short, stiff reddish hairs on its entire ventral ridge.

♀ : Unknown.

♂ Length of body : 4.3 mm., of proboscis : 2 mm.; breadth (with wings expanded) : 8.2 mm.

Unfortunately, as in the case of *H. bisglaucus* Bez., there is no record of this species from Egypt or elsewhere, other than the type described by Bezzi. This latter had been captured by me at Mazghouna on March 31st, 1924.

***Heterotropus sabulosus* PARAM.**

Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 129,

144; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 159, 171, f. 92.

DIAGNOSIS :

A small species of black and yellow colour, at once distinguished by the conspicuously broadened and black apical tarsal segment which strongly contrasts with the very pale yellowish colour of the legs and by the characteristic black design on the thorax and abdomen.

DESCRIPTION :

♂ : *Head* (Pl. VIII, figs. 128 and 129) entirely pale yellow except for two broad triangular blackish spots one on each side of the occiput but which do not touch the upper hind corner of the eye; the pubescence is practically inexistant on the anterior portion (frons, face and genae) but on the occiput it consists of some very short stiff pale brownish hairs which become softer and white below, as usual and very sparse and scattered about the jowls; face with a deep transverse furrow immediately below the centre, in addition to the furrow at the base of the platform (formed by the projecting upper margin of the mouth) which is comparatively longer than in *aegyptiacus* Param. but which does not quite reach the inner eye margins; eyes meeting for a decidedly long space, almost as long as the length of the frons and face together and longer than in any of the other Egyptian species; the sharp dividing line between the larger and smaller facets of the eyes is situated immediately above or parallel with the nose-like prominence of the face; proboscis brownish-yellow dorsally and obscure blackish beneath, and longer than the length of the head (including the antennae); palpi yellowish-brown with very short and very sparse erect whitish pubescence; antennae with the two first segments pale yellow and the third segment brownish-red; first segment distinctly shorter than the second sub-globose segment; third segment quite twice as long as the two basal segments together, elongate conical (although laterally compressed) and ending in a very short style; first segment of style dark brown and the second segment whitish except at the extreme base obscure brown and ending in a very minute white hair.

Thorax yellow but blackish-brown on the dorsum owing to the three very broad black longitudinal stripes being united except on the lower fourth or fifth of the disc where the colour of the background between the median and side stripes forms two admedian narrow yellow stripes which merge below, with the broad yellow sides of the scutum; when viewed in profile the sides of the disc are entirely yellow except for the usual median blackish extension of the outer margin of the side stripe, a short distance behind

the transverse suture; the vestiture on the disc consists of the usual pale yellowish tomentum, the dense, extremely short and closely adpressed yellowish hairs as well as of erect but short and not dense whitish pubescence; pleurae yellow but the mesopleura possesses a large black spot on the lower margin and the sternopleura is also black beneath; the pleurae are almost bare except for a sparse tuft of short soft outstanding whitish hairs about the middle of the mesopleura; scutellum entirely yellow with sparse short upstanding whitish pubescence.

Wings entirely hyaline with an extremely pale yellow, ill-marked but normal venation; 1st A cell closed well before the lower wing margin and consequently with a longish petiole; squamae with a whitish margin and a short but rather dense very pale yellowish fringe; knob of halteres pure milky white but the stem is pale brownish-yellow and obscure dark brown about the base.

Legs entirely pale yellow except the conspicuously broadened apical segments of all the tarsi (Pl. VIII, fig. 130) shining back and rather sharply contrasting with the very pale colour of the legs; third tarsal segment of the middle and hind legs pale brownish about the tip and fourth tarsal segment of the same legs obscure blackish-brown but paler about the base; the pubescence is not dense, short and all whitish; claws blackish but brownish-red about the base; pulvilli pale yellowish.

Abdomen (Pl. VIII, fig. 131) shining pale yellow with a very broad transverse shining black stripe on the base of most of the segments which somewhat resemble the stripes found in some specimens of *H. maculiventris* Bez.; basal segment with a transverse black stripe broadly interrupted in the centre, leaving almost the middle third and the upper and lower borders of the segment pale yellow; third to sixth segments each with a very broad shining black stripe on the base which covers almost the entire segment but which possesses on each side a rounded and in the centre a triangular indentations thus making the segments appear shining black with the lower border, the extreme lateral margins, the lower outer corners or angles and a small triangular indentation in the centre shining pale yellow; the very broad black stripe on the base of the second segment is the largest and broadest and the lateral pale yellow indentation instead of being rounded as described above, is narrow, elongate, somewhat ribbon-like and is directed inwards and upwards until it almost reaches the upper margin of the segment; seventh segment yellow; the pubescence is all whitish, very short, sparse on the dorsum and longer, outstanding as usual on the sides; venter yellow with a large, ill-defined obscure brownish-black spot about the centre of each of the first three sternites and with short, very sparse whitish pubescence; hypopygium (Pl. VIII, figs. 132 and 133) yellow except the rather short

rounded dorsal lamellae blackish-brown above and bearing short stiff whitish hairs about the apex; basal segment of claspers broad ovate; the strongly elbowed, apical segment of claspers short, broad triangular with the spine-shaped brown tip almost straight and with very short whitish hairs on the sides; fused ventral lamellae very large and broad triangular in shape, with the apex of the triangle obtuse.

♀ : Unknown.

♂ Length of body : 4.3 mm., of proboscis : 1.5 mm.; breadth (with wings expanded) : 6.5 mm.

Only one male specimen is known so far from Egypt, which was captured by my assistant Mohamed Tewfik Effendi in Wadi Garariyat on June 20th, 1932.

This species was originally described by Paramonow (1929, *loc. cit.* p. 144) from two males originating from China (16 and 19.VI.1917). The author states that they were captured on flowers of *Statice*. Engel however (1937, *loc. cit.*, p. 171) whose description is based on the co-type sent to him by Mr. Paramonow, evidently refers to a third male specimen caught later, since he gives the locality as Bucharra, Kara-Kul, and the date 27.VI.1928. Our male specimen from Egypt, which had been examined by Dr. Engel was considered by him as a new variety of the co-type and he calls it *subulosus-nigritarsus*.

Heterotropus stigmaticus BEZ.

Bezzi (1926), *Bull. Soc. Roy. Entom. Egypte*, 1925, 248, 2; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 125, 145; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 172.

DIAGNOSIS :

A small species with shining black thorax and longish white pubescence, easily distinguished from all the other species by the wings which possess a dark brown stigma.

DESCRIPTION :

♂ : *Head* (Pl. VIII, figs. 134 and 135) shining black except most of the frons and the face pinkish-buff, but this latter colour may be much reduced as in *magnirostris* Bez. and extend only on the sides of the lower border of the frons; occasionally, the produced nose-shaped part of the face, all the mouth margin, and most of the genae are reddish-yellow but the fairly long tufted and soft whitish pubescence all over the head is very characteristic; eyes not meeting but distinctly separated by a narrow black

line which is decidedly narrower than in *magnirostris* Bez.; proboscis entirely black and about twice as long as the length of the head; palpi rather long, filiform, blackish-brown and bearing long shaggy whitish hairs; antennae entirely black and the second segment reddish-yellow at the apex or this colour may be quite extensive and covering most of the segment; first segment a little longer than the second and both segments with very sparse, minute erect whitish hairs; third segment almost twice as long as the two basal segments together, laterally compressed but elongate-conical in shape and bearing apically a style which is about half the length of the second antennal segment; basal segment of style extremely short, sub-globose; apical style segment conical to almost rod-shaped and bearing apically a minute whitish hair.

Thorax very shining black with a pair of small rounded oval reddish-yellow or yellowish-red spots on the posterior border of the disc; one on each lower margin of the postalar callus and immediately in front of the outer corners of the scutellum; in addition, there is a second pair of rounded oval to somewhat quadrate or even triangular reddish-yellow spots on the anterior margin of the mesonotum, one on each side of, and touching the inner margin of the humeral callus; the notopleural suture is extensively reddish-yellow and this colour has a tendency to spread back in a more or less ill-defined line or spots above the wing base; the pubescence on the dorsum is characteristic, being rather long, upstanding, although soft, rather dense and all whitish; pleurae entirely shining black except the upper margin of the mesopleura yellowish-red, which colour merges into the similarly coloured notopleural suture; the pubescence on the pleurae is sparse, long, shaggy and all white; scutellum either entirely shining black or with a narrow to rather broad transverse yellowish-red to pale reddish-yellow stripe near the base, but which does not reach the side margins; the pubescence is not dense and consists of some longish, upstanding and soft whitish hairs.

Wings hyaline with a normal brownish-yellow venation and a characteristic dark brown stigma; the costa is also dark brown before reaching the apex of the wing and is strong beyond the apex of 1st A cell; r-m cross-vein placed on the apical third of 1st M_2 cell; 1st A cell closed at a short distance from the lower wing margin and consequently with a short petiole; squamae with a whitish margin and a short but not dense whitish fringe; knob of halteres cream colour and the stem is similarly coloured on the apical half or third but brownish elsewhere.

Legs with all the coxae and trochanters blackish; femora very dark reddish-brown, almost blackish except towards the apex more or less pale reddish-yellow and this pale colour being less extensive on the front femora

and more so on the hind legs; tibiae reddish-yellow but obscure brownish about the apex and this latter colour being much more extensive on the front and middle femora than on the hind legs; metatarsi reddish-yellow except about the apex dark brown like all the rest of the tarsal segments; apical tarsal segment feebly but distinctly broader than the preceding segments; the very short pubescence is entirely whitish and only a little longer and more outstanding on the femora; claws yellowish-red and black about the apex; pulvilli very pale yellowish.

Abdomen (Pl. VIII, fig. 136) shining black, except the basal segment, with a narrow cream colour transverse band on the lower border of the second to sixth segments, which form (owing to emarginations of their upper border) two small admedian rounded oval cream colour spots on each segment, and with the spots becoming larger towards the apex of the abdomen; first segment cream colour⁽⁹⁾ with a large subquadrate to triangular black spot on each side, which touches the extreme lateral border of the segment but which does not quite reach the upper and lower borders (of each outer fifth of the segment); the pubescence is rather long, all white and rather tufted on the sides; venter very shining black, almost bare, and with an extremely narrow pale yellowish lower border to most of the sternites; hypopygium (Pl. VIII, figs. 137 and 138) dark reddish-brown, almost blackish about the base and reddish-yellow apically, and with very short sparse pale yellowish pubescence; dorsal lamellae short, triangular roof-shaped; basal segment of median claspers broad-ovate; apical segment of claspers narrow triangular with a minute curved blackish spine apically and with a very sparse short fringe of whitish hairs on the inner margin; ventral lamellae extremely short and in the shape of a broad triangular plate.

♀: Rather different from the male in the design and colour of the head, thorax and abdomen, and the general pubescence is much shorter.

Head (Pl. VIII, figs. 139-142) shining black (except the face and the lower part of the head), with a conspicuous yellowish-red or reddish-yellow design which is not unlike that found in certain females of *H. maculiventris* Bez.; the design consists of one transverse narrow stripe covering both, the lower border of the frons and the upper border of the face, distinctly expanded in the centre (about the base of the antennae) and reaching the inner margin of the eyes, and one pair of somewhat triangular spots on the upper and outer margin of the occiput which may be quite isolated, or which may join two other larger spots on the vertex, on the sides of the black ocellar tuber-

⁽⁹⁾ Bezzi's original description. (1926, *loc. cit.*, p. 250) is wrong as he describes the first segment as black and the second segment whitish with the sides black. Paramonov and Engel had already noticed these errors.

cle; this latter pair of spots may be also quite isolated (interrupted in the middle) or united by a narrow reddish-yellow stripe immediately in front of the anterior ocellus; in addition, the occiput bears two small admedian narrow oval reddish-yellow spots, a little below the centre and which are more approximated to each other than the above mentioned pair of spots above; face blackish above (when viewed from in front) but the mouth margin and all the lower half or so of the genae is yellowish-red or brownish-yellow and this colour extending across backwards in a broad longitudinal stripe immediately below the eye (best seen in profile) and reaching the outer border of the occiput, thus leaving the lower part of the head (jowls) black; in one of the only two specimens available (from Gebel Elba) in addition to the spots described above there is an isolated small yellowish-red spot on each side of the lateral border of the occiput (in the middle of the puffed out portion) and touching the hind margin of the eye; the whitish pubescence is very sparse and shorter than in the male.

Thorax (Pl. VIII, fig. 143) black, less shining than in the male owing to the presence on the dorsum of sparse yellowish tomentum and with a characteristic yellowish-red to reddish-yellow design as follows: two narrow admedian longitudinal stripes extending from the upper margin of the disc (where they are expanded and reach to the margin of each humeral callus) to the lower margin, where they curve feebly outwards and slightly expanded thus covering each, the lower portion of the postalar callus; on the outer third of the disc the reddish-yellow design appears more variable as, in one female (from Gebel Elba) a small narrow stripe on the transverse suture and an other short longitudinal ill-defined spot behind the humeral callus (which joins the expanded portion of the admedian longitudinal stripe) are present, in addition to the yellow colour occurring above the wing base, while in the only other female, the type, the short stripe behind the humeral callus is absent, but the yellowish-red colour behind the transverse suture forms a complete, stout-walled circle leaving a large rounded black spot in the centre; scutellum with the transverse yellowish-red stripe near the base rather larger than in the male and somewhat crescent-shaped.

Abdomen (Pl. VIII, figs. 143 and 144) shining black with a pair of more or less large somewhat triangular yellowish-red to pale reddish-yellow spots on the lower border of each of the second to the sixth segments which form two admedian rows; these yellow spots appear to vary in shape but those on the second and third segments distinctly show that they are deep emarginations of the pale stripe on the segment's extreme lower border (like in the male) as the lower border of the second to fourth or fifth segments is pale yellowish and the admedian pair of pale spots on the second and third segments (in one female) or on the second to fifth or

even sixth segments (in the other female) are distinctly united to each other at the base by the pale stripe on the segment's lower border; first segment not unlike the male but the pale colour does not definitely extend on the upper and lower borders of the sides of the segment so that the entire outer fourth of the segment is shining black; seventh segment shining black; ovipositor blackish but yellow apically and with a row of about five or six narrow yellow spines on each side, in addition to the very short erect but fine yellowish pubescence.

♂, ♀ Length of body: 4-4.5 mm., of proboscis: 1.8-2 mm.; breadth (with wings expanded): 6.3-7.2 mm.

Three males and two females (including Bezzi's types) are known so far; one male from Mazghouna (31.III.1924), one pair from 2nd Tower (Suez Road), 14.III.1924, and one pair from Wadi Edeib, Gebel Elba (2.II.1933). No other record is available of the species from Egypt or from other countries.

Heterotropus xanthothorax NOV. SPEC.

DIAGNOSIS :

A medium sized (quite as large as *aegyptiacus* Param.) yellow species with brownish-black transverse bands on the abdomen, not unlike the female of *aegyptiacus* Param. in general colouration but distinguished from it and from other species by the short third segment of the antennae, the comparatively narrow clay colour longitudinal stripes on the dorsum of the thorax and by the colour of the legs.

DESCRIPTION :

♂ : Unknown.

♀ : *Head* (Pl. IX, figs. 145-147), distinctly less broad than in *aegyptiacus* Param. and entirely yellow but the face and the lower third of the frons are of a distinctly paler colour being Massicot yellow or even cream colour while the rest of the surface of the head (upper two-thirds of frons, vertex, ocellar tubercle and occiput) are Naples yellow; frons with a median elongate oval blackish-brown spot in the centre of the very insignificant depression and with two shorter very small, similarly coloured lines one on each side and exactly on the border line of the pale and darker yellow colour and in contact with the eye margins; the pubescence on the anterior portion of the head is practically inexistant but on the vertex, occiput and jowls it consists of minute sparse, very stiff, yellow bristly hairs which may be termed tiny bristles; proboscis dark reddish-brown, almost blackish, short, being not longer than the length of the head (including the antennae); palpi

yellowish-white, very long, coiled and bearing sparse, short whitish hairs; antennae blackish-brown but the basal segment is paler and the third segment brownish-yellow about the base; when examined from the side the basal segment is pale yellow ventrally and on the sides and the third segment yellow at the base and ventrally; first segment hardly longer than the second; these two segments are practically bare except for some microscopic whitish hairs about their apex and each with a minute blackish spine-like bristle in the centre of the apical margin on the dorsum; third segment hardly longer than the two first segments together, sub-conical in shape and quite bare; style of third segment very short and consisting of a minute (microscopic) ring-like, dark brown basal segment and a small, conical whitish second or apical segment.

Thorax Naples yellow with the three longitudinal stripes on the dorsum not unlike those of *H. aegyptiacus* Param. but narrower, of a deep clay colour, and this latter colour is edged by a narrow amber yellow line; the clay colour stripes are well separated from each other by the Naples yellow of the background and the narrow amber yellow line edging the median stripe (whose lower margin ends about parallel with the wing base) extends down in a mid-dorsal line to the lower margin of the disc; when the thorax is examined from the side a small triangular isolated clay colour spot is present behind the transverse suture, above the wing base; the pubescence on the disc is extremely insignificant but under fairly high magnification it consists of sparse minute, erect yellow or pale brownish bristles; pleurae very pale yellow except the lower portion of the mesopleura and most of the sternopleura obscure blackish-brown; pronotum with short stiff pale brownish bristly hairs which may well be called weak bristles but the pleurae are quite bare; scutellum entirely pale yellow like the ground colour of the scutum and with a similar, minute sparse bristly pale yellow pubescence.

Wings hyaline with a pale yellow normal venation and the stigma showing a tendency to being yellow as in *H. aegyptiacus* Param.; 1st A cell closed at a short distance from the lower wing margin and consequently with a short petiole; squamae with a yellow margin and a short, slight whitish fringe; knob of halteres cream colour and the stem pale yellow but obscure brownish about the base.

Legs pale reddish-yellow with all the tarsi black except the base of all the metatarsi brownish-yellow and the inner apical third of the hind tibiae obscure dark brown or blackish; apical tarsal segment normal, not broader than the preceding segments; the pubescence on the legs is extremely short and insignificant and consists of sparse, very short, whitish hairs; claws yellowish-red but black at the apex; pulvilli pale yellowish.

Abdomen somewhat shining, cream colour with a broad transverse

blackish-brown stripe on the upper border of each of the second to fifth segments which, in shape are not unlike the blackish stripes found in the female of *H. aegyptiacus* Param.; these blackish-brown bands have very ill-defined lower margins, the one on the second segment being the longest, and leaving rather less than the apical half and the two extreme lateral margins of the segment cream colour; the dark stripes become reduced in size towards the apex, as usual and on the third to fifth segments the spots have irregular, emarginate lower borders and are produced laterally on their side borders forming two large somewhat triangular blackish markings, one on each side of their respective segment (Pl. IX, fig. 148); sixth segment with the blackish-brown transverse band as described above but greatly reduced in size; seventh segment cream colour; the pubescence is almost inexistant on the dorsum but on the sides it is very short, sparse and all whitish and only a little longer near the base, on the sides; venter obscure dark yellowish-brown on the basal half and cream colour on the apical half and apparently quite bare; ovipositor (Pl IX, fig. 149) yellow with short erect but soft whitish-yellow pubescence and a longitudinal row of about six short, flattened yellow spines on each side.

♀ Length of body : 8.3 mm., of proboscis : 1.3 mm.; breadth (with wings expanded) : 10.4 mm.

Only one specimen is known so far, of this characteristic species, collected in Wadi Edeib (Gebel Elba) at the end of February 1938.

ALLOXYTROPUS

(Bezzi, 1925, *Bull. Soc. Roy. Entom. Egypte*, 1924, 186).

TYPE OF THE GENUS :

anomalus Bez. (1925, *loc. cit.*, 187).

Small or very small almost bare flies, closely related to the genus *Heterotropus* Lw. but at once distinguished by the remarkably low position of the antennae owing to the eyes in the male meeting for a very long distance, the much narrower frons of the female, the small indentation on the anterior margin of the eyes in both sexes and by the wing venation.

Head of male, when seen from above, although broader than long (somewhat broader than the thorax) almost spherical, because the eyes meet for a very long distance and leave below only a minute, narrow triangular frons; in the female, the head is not broader than the thorax and the eyes are separated by a comparatively narrow (much narrower than in *Heterotropus*) flat frons which is only a little broader than the ocellar tubercle; eyes in the male only with the facets enlarged above, and possessing, in both sexes a small triangular indentation on the anterior margin and parallel

with the base of the antennae ⁽¹⁰⁾; the remarkably low insertion of the antennae (distinctly below the line of separation between the upper larger and lower smaller facets of the eyes) leaves the face almost obsolete and the entire lower third (or rather less) of the anterior part of the head is occupied by the mouth opening which is directed ventrally, being bordered on the sides by extremely narrow (linear) side-cheeks and behind, by hardly wider jowls; ocellar tubercle very prominent in the male and less so in the female; occiput flat, not at all puffed out in the male and distinctly so in the female but frequently produced ventrally, below. Proboscis short but varying considerably in length in individuals of the same species and of the same sex, as it may be almost entirely retracted within the mouth opening and leaving only the sparsely pubescent labellae protruding; palpi consisting of one narrow and elongate segment. Antennae with the two basal segments very short, of almost equal length and the third elongate conical segment about three times as long as the two first segments together and possessing a short, minute apical style.

Thorax with a very weak pronotum hidden by the well developed humeral calli; metanotum well developed; the pubescence is almost inexistant but a short true bristle is present on the side, at a short distance in front of the base of the wing and a similar bristle, which is often accompanied by a much shorter bristly hair, on the postalar callus; scutellum almost as short as in *Heterotropus* but without the premarginal callosity on the apical border and with two short, crossed apical bristles.

Wings broad, with well developed anal and axillary lobes; venation very pale but thick and strong on the basal half and usually also on the anterior half of the wing but the apical portion of all the veins on the posterior half (the M., Cu. and A. veins) are so pale that they appear almost inexistant; costa obsolete beyond the fork R_4+R_5 ; 1st M_2 cell shorter than the latter fork and M_1+M_2 veins originate either from a single common petiole or, separately, but very approximated from the upper outer angle of this cell; 1st A cell broad, but so short that its closure is at a very long distance from the lower wing margin and consequently with a very long petiole; squama very large, with a short, slight fringe; knob of halteres more or less large.

⁽¹⁰⁾ This important character (the indentation on the front margin of the eye) has been omitted by Engel (1937, *loc. cit.*, p. 154). It is true, that this character is very often concealed by the antennae which have the habit of being held almost transversely bent outwards when dried, but on closer examination, the indentation is apparent in both sexes. Furthermore Bezzi (1925, *loc. cit.*, p. 186) in his original description of the genus commits a serious error when writing: « Yeux sans échancrure postérieure; ceux du mâle sont bisectés et longuement noirs ». As already pointed out by Paramanow (1929, *loc. cit.*, p. 82, foot-note 1) and as corrected by Bezzi himself, later, one should read: « longuement unis ».

Legs almost bare and without bristles; anterior and posterior legs distinctly more elongated than the middle pair, owing mainly to the respective coxae of the former being much longer; claws and pulvilli small but well developed.

Abdomen usually elongate, narrow conical, narrower than the thorax but it may be quite as broad as the thorax, at the base, and consisting of eight apparent segments; hypopygium large, well exposed and consisting mainly of the two conical, blunt dorsal lamellae which appear to be fused together near the base; ovipositor with some short delicate spines.

This very curious and aberrant genus was established by Bezzi (1925, *loc. cit.*) on the species *anomalus* Bez. which I had sent him from Egypt. A few years later, Mr. Paramonow (1929, *loc. cit.*) described the second species, *Bezzii*, from a small lot of Bombyliids from Egypt which he had requested me to send to him for study. These are the only two species known so far and they appear to be endemic to our fauna. Both representatives of the genus possess a remarkable resemblance in habitus with the species of the genus *Scenopinus* (Omphralidae), particularly in their small slender shape and general bareness of the body. Moreover the flight of the adults, which I have watched on more than one occasion, is sluggish and is not unlike the slow hovering of some Omphralids. Nothing is known of the early stages of these flies but the adults, like all the species of the genera *Mario-bezzia* and *Heterotropus* are never seen except during the hottest hours of the day, i.e. between 1 and 4 p.m. I have never captured or seen these Bombyliids earlier than 1 p.m., and my assistant Mohamed Tewfik Effendi who is the only other person in Egypt who has seen and caught these flies, confirms the above statement.

TABLE OF SPECIES

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|---|-----|--|----------------------|
| 1 | (2) | Head (including proboscis and antennae), thorax, abdomen and legs more or less pale brownish-yellow | anomalus BEZ. |
| 2 | (1) | Head (including proboscis and antennae), thorax and abdomen shining black; legs of male black with the knees and basal half of metatarsi brownish-yellow, in the female with the paler colour extending also on the tibiae | Bezzii PARAM. |

Alloxytropus anomalus BEZ.

Bezzi (1925), *Bull. Soc. Roy. Ent. Egypte*, 1924, 184, 187, 3; Paramonow (1929), *Mém. Acad. Scienc. Ukraine*, XI, livr. 2, No. 6, 83; Engel (1937), in Lindner, *Flieg. Pal. Region*, 26, Bombyl., 154, 1977.

DIAGNOSIS :

A very small slender, almost bare species, easily recognizable by its entirely yellow body and legs, and the very pale yellow almost indistinguishable wing venation.

DESCRIPTION :

♂ : *Head* (Pl. IX, figs. 150-153) entirely yellow, varying somewhat from cream buff to honey yellow or testaceous, except the very prominent ocellar tubercle usually brownish; proboscis and palpi yellow but the former sometimes obscure brownish; antennae entirely yellow and often the third segment is obscured about the base or on the dorsal side; the pubescence on the head is practically inexistant, except for a very few microscopic whitish hairs about the sides on the lower part of the occiput, some even shorter pale hairs on the palpi and a few longer erect yellowish hairs about the labellae.

Thorax of a uniform yellow colour, without any design but only occasionally with two obscure, very indistinct darker longitudinal stripes on the dorsum; the pubescence is almost absent; the short bristle on the side, in front of the wing base and the one on the postalar callus which is generally accompanied by a much shorter erect hair are yellow; pleurae and scutellum uniformly yellow, the former with some extremely short soft whitish hairs on the mesopleura and sternopleura and the latter bare but with the two short apical bristles brownish-yellow or yellow.

Wings (Pl. IX, fig. 154) hyaline with the venation pale yellow, often so much so that even the thicker base of all the veins and the radial sector are quite indistinct; on the posterior margin the veins are so pale that they are often quite effaced and invisible; r-m cross-vein placed beyond the middle of 1st M_2 cell; squama very large, with a rather dark yellow margin and a short, slight white fringe; halteres more or less pale yellow with the knob and the stem occasionally obscured about the base.

Legs entirely yellow with the tibiae and tarsi much paler, whitish-yellow but sometimes the femora are obscure brownish and practically bare; claws yellow to reddish-yellow but black apically; pulvilli yellowish-white.

Abdomen uniformly yellow or testaceous but sometimes obscure brownish apically and less frequently it may be entirely brownish; the pubescence, which is very short, sparse and pale yellowish, consists of some erect hairs about the base and sides and the hairs about the centre are extremely short and insignificant; venter uniformly yellow with very short, sparse whitish pubescence; hypopygium (Pl. IX, figs. 155 and 156) yellow to blackish-brown with short, sparse, erect yellowish pubescence, and when viewed from above consisting of the two large, broad conical and obtuse dorsal

lamellae; ventral lamellae very short truncate apically, and with short erect pale yellowish hairs.

♀ : Very similar to the male; head (Pl. IX, figs. 157-159) entirely yellow except the ocellar tubercle usually obscure brownish and sometimes the occiput is obscured about the centre; third segment of antennae often entirely obscure brownish. Wing (Pl. IX, fig. 160). Ovipositor yellow with very short erect whitish-yellow pubescence and with the spines brownish.

♂, ♀ Length of body : 1.8-4 mm.; of proboscis : 0.5-1.8 mm.; breadth (with wings expanded) : 4.5-6 mm.

A. anomalus is not common in Egypt; the types from which my late friend Dr. Bezzi made his original description originate from Kena (♂♂) and from Wadi Hoff (♀), both in the month of June. Dr. H. Priesner has collected three specimens (2 ♂♂ and 1 ♀) at the end of May and on the 23rd September at Maadi, which I found in the collection of the Ministry of Agriculture. Mohamed Tewfik Effendi and myself have captured large series of both sexes in Wadi Rishrash in the middle of June.

Alloxytropus Bezzii PARAM.

Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, No. 6, 83; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 155, f. 178.

DESCRIPTION :

♂ : *Head* (Pl. IX, fig. 161) almost entirely shining black, with the prominent and bare ocellar tubercle occupying, as in *anomalus* the entire vertex; face, genae and occiput bare except for a few very short whitish soft hairs scattered on the lower part of the latter (back of the head) and about the blackish-brown chin; proboscis and palpi black, the former about as long as the breadth of the head and with some short erect reddish-yellow hairs about the labellae and the latter with very short erect hairs as well; antennae black, not shining owing to very sparse, thin whitish tomentum; third segment somewhat cylindrical in shape but abruptly narrowed apically to a rather acute point which ends distinctly by a minute style ⁽¹¹⁾.

Thorax almost entirely black, very shining (as if varnished), but the postalar calli under strong light, are distinctly dark yellowish-brown; the pubescence is absent on the disc but on the sides, in front of the short brownish bristle (notopleural) there are a few scattered, very short out-

⁽¹¹⁾ This is in disagreement with Paramonow (1929, *loc. cit.*, p. 83) who describes the third segment of the antennae as « zylindrisch, an des Spitze verjüngt, ohne Griffel (ein Merkmal das diese Gattung an die Familie Omphralidae näher) ».

standing whitish hairs; postalar bristle pale brownish and accompanied, as usual with a much shorter yellowish erect hair; pleurae entirely black and shining; the pubescence consists of some very short whitish hairs (very sparse) on the mesopleura, sternopleura, and the propleura; the pronotum possesses as well, on each side a few stiff short pale hairs; scutellum very shining black like the mesonotum and bare except for about one or two very short pale hairs on the disc and the two short erect, crossed pale brownish apical bristles.

Wings hyaline with a typical venation and with the veins about the base and the anterior half pale brownish-yellow, while those of the posterior half very pale and almost entirely effaced; r-m cross-vein placed on the middle of 1st M_2 cell; squamae with a pale yellow margin and a very slight, short, white fringe; halteres yellow with the knob distinctly less large than in *anomalus* Bez.

Legs brownish-black with the knees (apex of femora and base of tibiae) and the base of the metatarsi brownish-yellow; the pubescence is extremely short and whitish; claws black but reddish-yellow about the base; pulvilli yellowish.

Abdomen narrow conical, almost entirely shining black but the basal segment with a transverse, obscure, ill-defined yellowish-brown stripe; the sparse pubescence is all whitish, short, outstanding about the base and sides but about the centre of the segments very short and inconspicuous; venter shining black with the lower border of the sternites obscure brownish and with short, sub-erect, sparse soft white pubescence; hypopygium (Pl. IX, figs. 162 and 163) black, with an ill-defined brownish-yellow spot about the centre, at the base, with sparse very short whitish pubescence and, when seen from above consisting mainly of the two large, conical and elongate (much longer than in *anomalus* Bez.), apparently fused, dorsal lamellae; ventral lamellae very short, with a truncate apex and bearing very short, erect whitish pubescence.

♀ : Very similar to the male but the antennae and often the proboscis as well are yellowish-brown (more or less dark), and the legs with the tibiae and basal half of the metatarsi usually all yellow; wings with the thicker veins, about the base and of the anterior half, dark brown, distinctly darker than in the male. Abdomen broader than in the male; ovipositor black, but yellow at the apex, with the spines reddish-brown and the short erect pubescence yellowish.

♂, ♀ Length of body : 3-3.3 mm., of proboscis : 0.4-0.7 mm.; breadth (with wings expanded) : 4.1-5 mm.

Only five specimens including the types, are known so far, of this species, one male and four females, all captured by me in Wadi Girfan on

22nd. IV. 1927. There is no other record of this fly from Egypt or from other countries.

APOLYSIS

(Loew, 1860, *Oefv. vet. Akad. Foerhandl.*, XVII, 81, 9; 1860, *Dipterenf. Südaf.*, 197, IX; *et* 1873, *Beschr. europ. Dipt.*, III, 199, 121).

TYPE OF THE GENUS :

humilis Lw. (1860), *Oefv. vet. Acad. Foerhandl.*, XVII, 81, 9.

Small to minute humpbacked flies, not unlike certain species of *Usia*, with the 1st M_2 cell absent, and the 1st A cell always closed at some distance from the wing margin, distinguished by the shape of the head and of the third segment of the antennae, as well as by the two segmented

palpi.

Head about as broad as the thorax and when seen from above in profile very rounded in the male and a little less so in the female but never as broad as in the female of *Usia*; eyes meeting for a long distance in the male so that behind, the well raised ocellar tubercle is conspicuous and in front, the frons is reduced to a short broad triangle immediately above the base of the antennae; the eye facets are larger on the upper two-thirds than on the lower third so that the dividing line between the size of the facets lies a little below the base of the antennae; in the female the eyes are widely separated, and the frons is very broad, almost as broad above as below, with a median furrow and a transverse depression which is situated nearer to the base of the antennae than to the median ocellus; face extremely short, almost inexistant owing to the mouth opening extending considerably upwards anteriorly almost to the base of the antennae, leaving rather narrow genae on the sides; occiput very feebly puffed out, especially above; occipital callosities situated below the insertion of the neck; proboscis not very long, only a little broader at the base and not unlike that of *Usia* but the palpi are distinctly two-segmented with the apical segment very elongate or broadened; antennae with the two basal segments very short and almost of equal length as in *Usia* but the third segment, which is more or less compressed laterally is broad-elongate, with a small short, upturned apex and bearing a microscopic sensory rod in a dorsal sub-apical pit. The other segments are very

Thorax not deeply humpbacked, longer than broad, with a very small and short pronotum and a well developed metanotum; the attachment of the head to the thorax is hardly as low as in *Usia*, and the design on the dorsum of the scutum is at most ill-defined; the pubescence on the entire body is very sparse, soft and short.

Wings with the 1st M_2 cell absent and 1st A cell always closed at some distance from the wing margin and consequently with a long petiole; the Sc fades away in the cell before reaching the Costa; anal and axillary lobes well developed; squamae comparatively small; halteres with a remarkably large knob.

Legs very similar to those of *Usia* but with a sparse pubescence; claws and pulvilli present.

Abdomen about as broad as the thorax, somewhat conical in the male and oval in the female; it consists of seven apparent segments and with large, well exposed male genitalia; ovipositor with two minute cerci.

Nothing is known of the early stages of the representatives of this genus.

Of the three species known so far, one of which (the type of the Genus) doubtfully belongs to the Palaearctic Region, only one is recorded from Egypt.

***Apolysis eremophila* LW.**

Löew (1873), Beschreib. europ. Dipt., III, 199, 121; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 128, 129, f. 63.

SYNONYMY :

cinerea Perris (1839), *Annal. Soc. Ent. France*, VIII, 56 (*Cyrtosia*).

DIAGNOSIS :

A minute blackish fly with the thorax bearing a fine white tomentum possessing a faint bluish tinge, the abdomen greyish-black with the extreme lower border of the segments cream-buff or yellowish and with the wings feebly, although distinctly milky-white.

DESCRIPTION :

♂ *Head* (Pl. IX, figs. 164 and 165) entirely black but the small triangular frons, the extremely short face and the upper half or so of the genae bearing a dense pure silvery white tomentum; on the rest of the head (the lower part and the back, as well as the occiput and the raised, stud-like ocellar tubercle) the white tomentum is very sparse and consequently these parts are greyish-black; the very sparse pubescence is all whitish and consists of a very few (about four or five) stiff, erect hairs on the face and genae a few shorter hairs on the ocellar tubercle and some longer and more numerous soft hairs on the back of the head; proboscis about as long as the head, all blackish and with a few very short erect pale hairs about the tip; palpi only a little shorter than half the length of the proboscis with the

short basal segment blackish and the long second segment, which is distinctly stouter on the apical half, obscure brownish and bearing microscopic erect, soft whitish hairs; antennae entirely blackish but the short upturned apex brownish and all the segments bear a thin whitish tomentum; first segment only with three or four minute erect pale hairs dorsally.

Thorax black but fairly densely covered with a fine white tomentum which gives it a weak although distinct bluish-grey tinge; the usual design (the darker longitudinal stripes) on the dorsum are practically inexistant and the very sparse, short whitish pubescence is a little longer and coarser on the sides of the anterior half, in front of the wing base; pleurae with a similar but somewhat less dense tomentum as the dorsum, consequently uniformly grey and almost bare; scutellum bearing a similar tomentum as the scutum and with sparse whitish, short bristly hairs about the margin.

Wings distinctly but not deeply opaque milky-white and with a yellow (often very pale and not well marked) normal venation; the arms of the fork R_4+R_5 are very short, much shorter than the base of the R sector; the r-m cross-vein is placed almost above vein Cu_1 ; 1st A cell closed at a fairly long distance from the margin and consequently with a long petiole; squamulae with a pale yellow margin and a slight, very short white fringe; halteres with a yellowish-white to yellow knob and a more or less dark obscure brownish stem.

Legs dark blackish-brown, somewhat paler (brownish-yellow) about the knees and on the tarsi and with sparse, very short whitish pubescence; claws black but reddish-yellow about the base; pulvilli very pale reddish-yellow.

Abdomen greyish-black with the lower border of the segments more or less narrowly pale yellowish and with a sparse, erect but soft whitish pubescence which is about equal in length to that on the sides of the mesonotum; venter obscure brownish-black with the lower margin of the sternites pale yellowish and practically bare; hypopygium (Pl. IX, fig. 166) dark blackish-brown but the large triangular, somewhat keel-shaped ventral lamellae yellowish at the tip and bearing minute, erect pale yellowish hairs.

♀ : Very much like the male but the frons is much broader and the abdomen is more oval; the frons (Pl. IX, fig. 167) like the entire head is of a uniform blackish-grey colour except for the longitudinal median and transverse furrows black; venter pale yellowish, but obscure brownish about the base; ovipositor brownish-yellow with short erect yellowish pubescence.

♀, ♂ Length of body (including the proboscis) : 1.4-2 mm.; breadth (with wings expanded) : 3-4 mm.

Only four specimens of *A. eremophila* Lw. are known from Egypt, 2 males and 2 females, all captured at Ismailia on April 7th, 1926.

This species is also known from Tunis and Turkestan

PHTHIRIA

(Meigen, 1803, Illiger's Magaz., II, 268, 44).

SYNONYMY :

Cyclorhynchus Macq. (1840), Dipt. éxot., II, 1, 114, 27 [*praeocc.* Sund., 1835, Aves].

Dasypalpus Macq. (1840), Dipt. éxot., II, 1, 112, 24.

Megapalpus Macq. (1834), Suite à Buffon, I, 394, 13.

Phthiria Rond. (1863), *Archiv. per l. Zool.*, III (*sep.*) 65.

Pocilognathus Jaem. (1863), *Abhandl. Senckenberg, Naturf. Ges.*, VI, 350, 50.

TYPE OF THE GENUS :

pulicaria Mikn. (1796), Mon. Bombyl. Bohem., 58, 14, t. IV, f. 14 (*Bombylius*).

Small to medium-sized, rather slightly pubescent flies of a light grey to greyish-yellow colouration, with a very long slightly arched proboscis, long and broad wings, and with characteristic antennae which are inserted on a rather conspicuous prominence.

Head of the male somewhat narrower than the thorax and much more rounded than in the female, as the eyes, which are feebly depressed anteriorly and which possess the upper facets enlarged, are touching for a long distance; head of the female about as broad as the thorax and much broader than high owing to the eyes being widely separated; frons produced forward below, into a conspicuous antenniferous prominence which, in the male is reduced to a small triangle, but large and broad in the female, and depressed in the middle part; face broad, but extremely short because the large and rather wide mouth opening extends up between the wide side-cheeks almost to the base of the antennae; these side-cheeks or genae (jowls) which constitute the side margins of the buccal cavity are produced forward and, in profile, appear almost as prominent as the lower part of the frons; the chin is also produced and prominent, distinctly more so in the female, but the occiput is only very feebly puffed out in both sexes; ocellar tubercle small, prominent in the male and much less so in the female; proboscis very long and thin, almost like a bristle, always more or less arched and with very small suckerflaps; palpi one-segmented, elongate and very thin. Antennae porrect, much shorter than the head and approximated at the base; the two basal segments are almost equally short and clothed usually with sparse, very short stiff pubescence; third segment elongated, sub-lanceolate to peg-shaped, ending dorsally by a characteristic short and stumpy

or downwardly bent process, and beneath by a pit in which is inserted a minute sensory rod ⁽¹²⁾.

Thorax oval, longer than broad and not much arched, clothed in the male with rather abundant but not dense fairly long erect pubescence without any sign of bristles, but in the female with only short, sub-erect or depressed pubescence; pleurae almost bare except for a rather dense tuft on the mesopleurae; metapleurae bare; scutellum large and almost semicircular.

Wings longer than the abdomen and very broad; the costa follows the margin to the apex of 1st A cell, in almost uniform strength; branches of fork R_4 , R_5 almost parallel; r-m cross-vein always placed well beyond the middle of 1st M_2 cell and the latter emitting two veins to the wing margin. in addition to $Cu_1 + M_3$; 1st A cell always closed before the margin and consequently petiolate; axillary lobe and squamae well developed and the latter only with a slight short fringe.

Legs long and thin and this appearance is partly due to the unusually elongate coxae; bristles are totally wanting but the middle and hind tibiae are usually armed with minute spicules.

Abdomen with seven apparent segments, rather narrow and conical in the male but usually rather ovate and somewhat flattened in the female; the pubescence consists of short, rather adpressed hairs about the middle third of the dorsum and of longer erect hairs elsewhere, and the short hairs are usually much more dense in the female; hypopygium small but not concealed; ovipositor without spines.

The metamorphosis is unknown. The adults of *Phthiria Salmayensis* n. sp. which I have captured frequently in the vicinity of St. Catherine Monastery, Southern Sinai, at an altitude between 1600 and 2200 metres, possess a habit which I am hoping may lead the naturalist to trace the life-cycle of this insect. In this district, owing to the scarcity of cement, the banks of the mountain paths and most of the stone walls surrounding the orchards and gardens are built simply by rough stones being placed over each other which obviously results in a very primitive type of construction often leaving large holes among the stones. These empty spaces and holes afford ideal shelter for rodents, reptiles and arachnids and curiously enough they always harbour this particular fly. In fact I have never come across them in the open ground or on flowers, and all the specimens known were caught by my assistant Shafik Mostafa Effendi and myself out of the holes after having been disturbed by us.

(12) I quite agree with Engel (1937, loc. cit., p. 139) that it is a definite error to call the very short (often microscopic) spine-like or minute stumpy process, on the dorsal side of the apex of the third segment of the antennae, a style. This error has been committed and repeated by many previous authors such as Verrill and Bezzi.

Engel (1937, *loc. cit.*) records some eighteen species from the Palaearctic Region but I much doubt the stability of many of these names in the specific rank. For instance, our indigenous *unicolor* Bez. is unmistakably the female of *Phthiria tricolor* Bez. and more over my late friend and colleague, Dr. Bezzi (1925, *loc. cit.*, p. 191-2) in his original description of *Phthiria unicolor* which immediately follows that of *P. tricolor* uses the following words : « Voisine de *subnitens* Loew, pourrait aussi être la femelle de l'espèce précédente, mais présente les pattes entièrement jaunes ». Although marked sexual dimorphism in form and colour is not apparent in two of the species described below (*P. gaedei* Wied. and *P. Salmayensis* *nov. spec.*), its existence in the case of other Palaearctic species is well established so that the entirely yellow legs of the female, in the case of Bezzi's species is not by any means exceptional. Furthermore I am almost convinced that *P. umbripennis* Lw. is synonym with *P. Gaedei* Wied. *apud* Meig. because a large series of both sexes collected by me in the Mariout district include specimens agreeing entirely with the descriptions of Meigen's and of Loew's species, while other specimens are intermediary forms between the two. Strange enough, I find that the male (out of a pair caught by me *in copula* and belonging to the same series), studied by Dr. Engel and returned to me, bears the label : « *Phthiria umbripennis* Lw., ♂ », and the other sex, « *Phthiria Gaedei* Wied. ♀ » !

Four species only are described below, as belonging hitherto to our fauna, one of which is new to science. Austen (1937, *loc. cit.*) records the existence of eight species in Palestine.

TABLE OF SPECIES

- 1 (6) Dorsal process at apex of third segment of antennae elongate, very distinct and somewhat spiniform; legs partly or entirely yellow or reddish-yellow; medium-sized species (3.8-7.5 mm.).
- 2 (5) ♂ : short pubescence on frons either quite dense or very sparse, but always black; dorsum of thorax greyish-tawny olive or brownish-grey and if brownish-grey, then the short pubescence is black.
♀ : frons brownish-yellow to pale pinkish-buff, with a broad median blackish or blackish-brown stripe, extending from the ocellar tubercle to (or almost) the base of the antennae, which may be interrupted in the median depression or more or less deeply emarginate on both sides, at the depression, and possessing a small median elongate-oval yellow spot or triangular indentation.
- 3 (4) ♂ : short black pubescence on frons quite dense; dorsum of thorax greyish-tawny olive with rather dense brownish-yellow pubescence (often with some blackish hairs about the centre).

♀ : frons yellow (brownish or reddish-yellow) with a broad median blackish stripe extending from the ocellar tubercle to (or almost) the base of the antennae and which is interrupted by a narrow yellow transverse line, in the depression **Gaedei WIED.**

- 4 (3) ♂ : short black pubescence on frons very sparse and scanty ; dorsum of thorax brownish-grey with the short pubescence not dense and black (except about the humeri brownish-yellow).

♀ : frons pale whitish-yellow to pinkish-buff with a broad median blackish-brown stripe extending from base of ocellar tubercle almost to base of antennae, which may be more or less deeply emarginate at the depression, with a small median elongate-oval yellow spot or entirely interrupted at the depression with the lower margin of the upper half of the black stripe possessing a long narrow median triangular yellow indentation **Salmayensis NOV. SPEC.**

- 5 (2) ♂ : short pubescence on frons very sparse, scanty and all whitish ; dorsum of thorax bluish-grey with short, not dense pale yellowish-white pubescence.

♀ : frons entirely yellow to pinkish-buff with a small, median arrow-shaped or triangular blackish spot on base of antenniferous prominence **tricolor BEZ.**

- 6 (1) Dorsal process at apex of third segment of antennae microscopic, stumpy and indistinct ; legs entirely blackish ; smallest species (2.8-5.0 mm.) **xanthaspis BEZ.**

Phthiria Gaedei WIED.

Wiedeman, apud Meigen (1820), Syst. Beschreib., II, 221, 5(*Gaedei*) ; Schiner (1862), F.A., I, 67 ; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 141, 144, fs. 72-73 ; Austen (1937), Bombyl. of Palestine, 63, 64, 49.

SYNONYMY :

maculata Meig. (1820), Syst. Beschreib., II, 221, 6.

notata Big. (1862), Annales Soc. Ent. France, 1862, 112, 3.

punctata Meig. (1820), Syst. Beschreib., VII, 67, 7 ; Austen (1937), Bombyl. of Palestine, 64, 68, 53.

unbripennis Lw. (1846), Linn. entom., I, 393, 5 ; Mik (1880), Verh. Zool-bot. Ges. Wien, XXX, 592 ; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 140, 151 ; Austen (1937), Bombyl. of Palestine, 64, 68, 52.

DIAGNOSIS :

A medium-sized to rather small greyish-tawny olive species, the male easily distinguished by the rather dense black pubescence on the frons and the female by the broad median blackish band or stripe on the middle third of the frons, which extends from the ocellar tubercle almost to the base of the antennae and which is always interrupted by a narrow yellow line at the depression.

DESCRIPTION :

♂: *Head* (Pl. X, figs. 168 and 169) black and when viewed in profile the entire occiput, the prominent chin, and the inflated broad side-cheeks appear covered with fine tawny olive tomentum but the ocellar tubercle and frons (dorsum of antenniferous prominence) bears a thin white tomentum which extends down along the anterior margin of the eye, in the shape of a more or less ill-defined grey triangle; when seen from in front however, the small, prominent ocellar tubercle appears blackish, the frons blackish all about the centre of the dorsum of the antenniferous prominence but with all the margins light brownish-grey, and the broad side-cheeks pale brownish-grey but with the side margins of the mouth yellow; in between the grey tomentum of the genae and this latter yellow colour, there is a more or less broad blackish or brownish-black stripe which, above, covers the extremely short but broad face; the pubescence on the frons consists of numerous, rather dense sub-erect stiff black hairs concentrated on the entire blackish surface, and on the genae, similar stiff but mostly brownish hairs (outstanding and bent inward at the apex and a few being blackish) are present and here also crowded on the blackish stripe bordering the yellow side margins of the mouth; ocellar tubercle with some short, forwardly directed black hairs; occiput with fairly dense erect brownish pubescence which is somewhat softer, a little longer and paler below, on and about the chin; proboscis and palpi black, the latter with microscopic, stiff reddish hairs which are longer about the feebly swollen apex; antennae black but the extreme apical margin of the second segment is distinctly yellow; first and second segments with very short black bristly hairs; third segment narrow lancet-shaped, quite four times as long as its broadest part and bearing a few, scattered, very short inconspicuous hairs; dorsal process on the apex of the third segment, large, feebly bent downwards and spine-shaped.

Thorax more or less pale tawny olive to olive grey tomented with the usual three darker longitudinal stripes fairly apparent usually only on the anterior half of the disc owing to the tomentum being paler (brownish-grey) all about the anterior and side borders; the median dark stripe, which is

usually more apparent and better defined than the side stripes, consists of a pair of narrower admedian stripes, commencing on the fore border and extending to about the middle (sometimes ending before the middle and occasionally beyond it) and narrowly separated; the darker side stripes, which are much broader and shorter above are ill-defined and occupy each, most of the outer third of the disc, being as usual interrupted by the pale coloured tomented transverse suture; the pubescence is not long but unusually dense and tufted (in comparison with the other three species) and it may consist entirely of brownish or yellowish hairs or many of the shorter hairs about the centre of the disc may be blackish; pleurae uniformly grey to brownish-grey with rather dense, longish, outstanding, soft, pale yellowish hairs on the mesopleura, some similar but somewhat shorter, less dense hairs on the sternopleura and a row of also similar hairs on the posterior margin of the hypopleura; scutellum more or less pale brownish-yellow like the postalar calli, usually unicolorous but sometimes with an obscure dark brown median basal triangle or this obscure brown marking may be in the shape of a broad, ill-defined median stripe, and clothed with a similar yellowish pubescence to that of the mesonotum.

Wings hyaline, with a well marked dark brown or blackish-brown normal venation and with a rather conspicuous, long, brownish yellow (light isabella coloured) stigma (rather more than the apical half of the Sc cell); 1st A cell with a long petiole or stalk; squamae with a yellowish-white margin and a very short, slight, white fringe; halteres more or less pale to dark brownish-yellow with the stem always obscure brownish about the base and with the knob usually possessing a rounded oval blackish-brown spot on the anterior surface but the knob may be unspotted and always paler at the tip.

Legs reddish-yellow to brownish-yellow but the femora are more or less extensively blackish-brown or blackish and all the tarsi also blackish except the basal third of the metatarsi reddish-brown; usually all the femora are blackish-brown except about the apex brownish-red and this latter colour is always more extensive on the middle femora (often covering the apical half); coxae and trochanters blackish but both, reddish-yellow at the extreme tip and the former with some longish reddish-yellow hairs on the anterior surface and outer sides; the pubescence on the femora is pale yellowish, very short above and quite long beneath, particularly on the anterior femora, postero-ventrally; on the tibiae and tarsi the pubescence is minute and black, although often reddish on the dorsal side of the metatarsi; claws black; pulvilli yellowish-white.

Abdomen more or less dark cinnamon buff to reddish-brown with blackish markings on the anterior third or more of the second to seventh segments which vary considerably in length, breadth and shape; basal segment entirely

blackish; second segment with the black marking usually occupying the entire upper third and connected by a median extension with a quadrate, roughly triangular or somewhat cordate blackish spot, situated beyond the middle of the segment but not touching the hind margin; third to seventh segments each, either with the entire basal third to half black (this colour being usually broadest in the centre of each segment and becoming gradually narrower towards each side) or with a small or rather long, oval, median blackish spot at the base; the pubescence which is quite long, fairly dense but soft about the base and sides, and much shorter and rather adpressed all about the middle third or more of the segments (except the basal segment), is all yellowish; venter brownish to yellowish-red with a median black or blackish-brown longitudinal stripe, which towards the base of each sternite has an irregular lateral extension on each side, and with an evenly scattered yellowish pubescence which is a little longer on the sides; hypopygium (Pl. X, figs. 170 and 171) dark reddish-brown, paler about the apex and clothed with longish brown hairs; dorsal lamellae each with the small but stout outer spine-shaped hook deeply bent inward with the apex of the hook recurvate and with a small inner broad triangular lamella which bears very short but dense erect yellowish hairs on the dorsal surface; fused ventral lamellae with a very evenly rounded apical margin and without a trace of admedian spines or extension; penis shining reddish-brown, stout, but much thinner apically.

♀ : Not unlike the male but the abdomen is broader, the general colour of the body and legs is paler and the pubescence, as usual much shorter.

Head (Pl. X, figs. 172 and 173); frons more or less pale or dark reddish-yellow with a broad median longitudinal blackish stripe which is always more or less clearly interrupted in the depression and which varies much in shape; on the upper half of the frons where the stripe appears as an extension of the blackish ocellar tubercle, it is usually a narrower, parallel sided stripe whose lower margin ends either in a broad cone-shaped point or in a line parallel with that of the depression, but always before the latter; below the depression, the blackish stripe is usually much broader than above and it may occupy most of the dorsal surface of the antenniferous prominence, but often it is dagger-shaped or cuneate and occupying the position of a median spot at the base of the prominence; this latter sometimes possesses on each side and resting on the eye, a small, more or less distinct, blackish-brown triangular spot or oblique stripe; first segment of antennae sometimes entirely yellow or yellow with the extreme apex blackish.

Thorax with the dorsum of the scutum distinctly paler than in the male and with the humeral as well as the postalar calli yellow; from the humeral calli the yellow colour often extends broadly back to the transverse suture and from the postalar calli forward in the shape of an elongate and fairly

broad yellowish stripe, reaching about half way between the callus and the transverse suture; sometimes the pleurae are yellow with a large blackish spot on the lower part of the mesopleura, extending on to the pteropleura and on more than the lower half of the sternopleura; the pubescence which is much shorter and more adpressed than in the male is all yellow or yellowish-white.

Legs with the yellowish or reddish-yellow colour much more extensive on the coxae, femora and tibiae than in the male, all these segments being frequently entirely reddish-yellow.

Abdomen with the basal segment yellow; second segment usually with the blackish spot beyond the middle but not touching the hind border, isolated, more or less elongate-quadrate or transverse-oval and not connected with the upper blackish third (or less) of the segment; in addition to this large median spot, occasionally the second segment may possess two other smaller, admedian blackish spots on the lower half of the segment; basal third to half of third to seventh segments usually blackish and occasionally with the apical border of the black colour rather deeply emarginate as if showing a tendency to form spots; the much shorter pubescence is more yellowish than in the male and the brownish-yellow ovipositor (eighth segment) is clothed with somewhat longer brownish hairs.

♂, ♀ Length of body : 3.8-7 mm.; of proboscis : 3.4-3 mm.; breadth (with wings expanded) : 8-12.2 mm.

I possess a large series of this very variable species, fifteen males and twenty eight females all originating from the Western Coast, from Mariout to Solloum (10.IV. to 20.V.). They exhibit all the unstable variations on which are based the descriptions of the synonyms given above. Austen (1937, *loc. cit.*, p. 68) gives a detailed description of *P. punctata* Meig. as an attempt to restore Meigen's species to specific rank, but as I have stated above, the variations in *Gaedei* are so frequent and usual, that Austen's arguments are not convincing.

P. Gaedei Wied. has a wide geographical distribution, being known from all Southern Europe, Asia Minor, Palestine and from other parts of North Africa.

***Phthiria Salmayensis* NOV. SPEC.**

DIAGNOSIS :

A small to comparatively large species with the abdomen usually banded black and reddish-yellow, easily distinguished by the frons in the male on which the short very sparse pubescence is all black and by the broad longitudinal blackish-brown band on the middle third of the frons of the female which may be emarginate at the depression and its upper longer portion

with a more or less deep median, triangular, yellow indentation on its posterior margin.

DESCRIPTION :

♂ : *Head* (Pl. X, figs. 174 and 175) usually black but occasionally the broad side-cheeks are pale yellowish-brown and this colour may extend on the chin and on all the lower part ; frons with very sparse (sometimes extremely) white tomentum as if it had been rubbed off all over the dorsal, somewhat raised centre of the antenniferous prominence, because all the sides or margins are densely covered with shimmering argenteous tomentum ; the short bristly pubescence on the frons is more or less sparse (never dense) and always black ; the extremely short face usually bears a sparse white tomentum which extends laterally on both sides and then slopes downwards and back to the lower margin of the eyes, so that the argenteous tomentum on the frons extends down on the inner border of the broad side-cheeks in the shape of an elongate triangle whose base lies immediately below the antennae and whose very long, narrow apex is bent outwards, following the anterior and lower margins of the eyes ; the remaining apical two-thirds of the side-cheeks are usually all shining black but the extreme border of the mouth margin is yellow (best seen when viewed from in front) and occasionally this yellowish colour is much more extensive, as stated above ; face and side-cheeks bare but the latter possess a row or two of short stiff black hairs, whose tips are bent in, very close to the side margins of the mouth, but often many of these hairs are missing and sometimes most of them are wanting (having been rubbed off) ; ocellar tubercle small but prominent, with sparse white tomentum and some short, stiff, forwardly directed, black bristly hairs ; occiput covered with a dense white tomentum but which leaves a narrow postocular line shining black, and bearing a short pubescence which is erect and blackish above about the centre, obscure brownish-grey all about the middle, and softer, somewhat longer and pale yellowish all over the lower side of the head ; proboscis black, longer than the head and thorax together and feebly although distinctly arched, as usual ; palpi short, blackish and somewhat swollen about the apex where they bear some minute erect obscure brownish hairs ; antennae usually entirely blackish but sometimes the second segment is yellowish at the tip and rarely most of the second and the lower half of the third segments are pale (obscure) yellowish-brown ; second cup-shaped segment somewhat broader and longer than the first and both segments with very short, sparse, black bristly hairs ; third segment lancet-shaped, about three times as long as its broadest part and practically bare ; dorsal process on the apex of the third segment large, feebly bent downwards and spine-shaped (as in *Gaedei* Wied.).

Thorax more or less pale brownish-grey tomented with the three darker longitudinal stripes on the dorsum usually very apparent, or correctly speaking, the ground colour is black and the tomentum on the anterior half is whitish, while that on the posterior half is of a pale but distinct brownish colour; the colour of the tomentum is rather variable, hence some specimens possess the entire dorsum pale greyish and in some others it is decidedly brownish-grey or even pale greyish-brown; the median blackish stripe, which extends from the upper border to a short way below the middle of the disc is divided by a narrow grey line and the broader side stripes which are shorter above as usual, and interrupted by the pale tomented transverse suture, have less sharply defined margins; the postalar calli are obscurely yellowish-grey to yellowish-brown; the pubescence is short, not dense and usually all blackish on the middle two-thirds of the disc and obscure brownish or brownish-grey all about the sides; pleurae entirely black and rather shining owing to being covered with extremely sparse, thin, white tomentum and with soft, outstanding (but not dense and not long) white pubescence on the mesopleura, on the sternopleura and a very few similar but pale yellowish hairs on the posterior margin of the hypopleura; scutellum black and bearing a similar tomentum as the posterior half of the dorsum of the thorax (hence greyish-brown) and with a similar yellow pubescence, also with a few of the hairs about the centre and near the base, black.

Wings (Pl. X, figs. 176 and 177) very broad, hyaline with a well marked brownish-black normal venation which is yellow at the base, as usual; vein R_4 frequently emitting a petiole near the base in R_3 cell; vein M_2 distinctly weaker and paler, showing a tendency to disappear and occasionally reduced to a short petiole (Pl. X, fig. 176); 1st A cell with a rather long petiole; squamae with a very pale yellow margin and a short white fringe; knob of halteres more or less pale whitish-yellow, almost pure ivory white at the tip but somewhat obscured about the base and the stem pale yellow except about the base obscure brownish.

Legs usually with the femora blackish except the apex reddish-yellow to brownish-red, and this latter colour being always more extensive on the apex of the middle femora, sometimes covering more than the apical half; tibiae yellow to reddish-yellow but the anterior and posterior pair obscured towards the tip and the middle tibiae always paler; coxae and trochanters black but the former yellowish at the extreme tip and with sparse, soft, outstanding whitish or pale yellowish hairs on the anterolateral sides; tarsi more or less obscure blackish-brown but the metatarsi more or less extensively yellow or reddish-yellow on the basal half; the very short pubescence on the femora is yellowish and only a little longer on the posterolateral sides of the

front and middle pair; on the tibiae and tarsi the microscopic hairs are mostly blackish; claws black but reddish-brown at the base; pulvilli pale yellowish.

Abdomen (Pl. X, figs. 178-180) more or less pale brownish yellow with a broad transverse black stripe, usually occupying the basal half of each segment (except the first) and which gives it a characteristic banded appearance; the length and shape of the black design on the segments is very variable; basal segment almost always entirely black but occasionally it may possess the apical third or fourth brownish-yellow; second segment with the transverse black stripe occupying from the basal third to more than the basal half, and always with a broad quadrate or trapezoidal median projection whose apical margin never touches the lower border of the segment; sometimes this black stripe is broadly interrupted on both sides of the median projection by the yellow colour (somewhat obscured) of the lower portion of the segment, showing a decided tendency for the black stripe to form spots; third to seventh segments each usually with the black stripe across the base rather similar to that on the preceding, but the broad median projection is usually much shorter, often obsolete, and occasionally the stripe is reduced to three small somewhat triangular black spots, one median and two lateral (one on each extreme side border), on the upper border of the segment; often also the third to seventh segments are black with their apical third or much less (particularly the sixth and seventh) obscure brownish-yellow; the sparse pubescence is longish, erect, soft and pale yellowish on the sides but the much shorter, rather adpressed, coarse hairs all about the centre are black; venter yellowish-white with a broad median longitudinal rather shining black band which is broader at the base and interrupted by the narrow transverse pale yellow posterior borders of the sternites; the pubescence on the venter is very short, soft, sub-erect and all yellowish; hypopygium (Pl. XI, figs. 181 and 182) blackish above (dorsal lamellae) and reddish yellow below (ventral lamellae) and clothed with rather long mixed blackish and yellowish-brown pubescence; dorsal lamellae each, with the outer spine-shaped hook directed deeply inward as in *Gaedei* Wied. but less acute, rather less recurvate, and with a small inner broad triangular lamella bearing very short, dense, erect, yellowish hairs on the dorsal surface as in *Gaedei* Wied.; fused ventral lamellae with the apical margin possessing two small admedian, obtuse spines, rather approximated to each other but less so than in *tricolor* Bez.; penis reddish-brown to blackish, more evenly and gradually pointed to the tip than in the preceding species.

♀ : Not much like the male as, in addition to the abdomen being broader and with the usual difference in the colour and the length of the general pubescence, the ground colour of the thorax, legs and abdomen are also different.

Head (Pl. XI, figs. 183-185); frons varying from pale yellowish-white to reddish-brown with a broad median longitudinal blackish stripe, extending from the ocellar tubercle down almost to the base of the antennae, and which may be continuous but more or less deeply emarginate at both sides in the depression and possessing an elongate median triangular yellow spot, or interrupted in the depression with its lower half (on the dorsal surface of the antenniferous prominence) short, broad-cuneate or cylindrical in shape and its longer and usually narrower upper half (above the frontal depression) somewhat cylindrical in shape with a long narrow median triangular yellow indentation; the pubescence on the frons is very short and very sparse, mainly distributed about the sides and usually all black but sometimes all pale brownish or even yellow; the broad side-cheeks varying from pale whitish-yellow to reddish-brown, with a broad, somewhat quadrate blackish spot occupying usually almost its entire upper half (sometimes more) and stretching right across from the side margin of the mouth to the margin of the eye and the pubescence is reduced to about one row of very short and very sparse whitish hairs close to the side borders of the mouth; occiput black but with a fairly broad pale yellow to reddish-brown border behind the eye margin, and this colour, which is connected above with the blackish ocellar tubercle by a median stripe extends also below, in a more or less prolonged median blackish stripe on the chin; the pubescence on the occiput is much shorter than in the male but much coarser, being decidedly bristly on the upper part and pale brownish-yellow and as usual softer and paler elsewhere until it becomes very soft and whitish on and about the chin. Second segment of antennae with the yellowish colour about the apex more pronounced than in the male; first segment often entirely yellow or yellow with the apex more or less extensively blackish.

Thorax distinctly paler than in the male and with a shorter, more adpressed pubescence which is hardly different in colouration; the sides of the scutum possess large yellow spots, one, very broad and large immediately behind and between the yellow humeral callus and the transverse suture, and one narrower oblique triangular spot originating from the equally yellow postalar callus and extending forward and reaching about half way between the callus and the suture, very much in the same way as in the female of *Gaedei* Wied.; pleurae yellow (more or less pale) with a large blackish spot on the lower part of the mesopleura, extending on to the pteropleura and on more than the lower half of the sternopleura; scutellum more or less dark brownish to yellowish-brown and pale yellow all about the margin, rarely unicolorous brownish-yellow.

Legs with the yellow to reddish-yellow colour, as usual, much more extensive on the coxae; trochanters, femora and tibiae, and as in the preceding species, often the legs are almost entirely reddish-yellow.

Abdomen varying from entirely unicolorous brownish-yellow to obscure reddish-brown with the lower border of the segments more or less extensively pale yellowish; the basal segment is always brownish-yellow (more or less pale) and sometimes the second segment possesses an oval or bilobed median black spot on the lower half but not touching the lower border of the segment; third to seventh segments each, occasionally with a small oval median blackish spot on the upper border, or each segment may possess in addition, two smaller blackish spots on the upper border, one on each side of the median spot, or the entire upper border of each segment may be obscure blackish, as if the three blackish spots had spread laterally and run together; the pubescence, which is much shorter and more adpressed than in the male, is usually almost all yellowish except for a few blackish or dark brown hairs about the centre of the third to seventh segments, but occasionally, most of the hairs on the dorsum are black, coarse and bristly, and only the more outstanding, softer pubescence about the sides of the base are yellowish and the longer, coarser hairs about the apex brownish. Venter also varying from unicolorous yellow or reddish-yellow with the lower border of the sternites whitish-yellow to reddish-brown with a median longitudinal blackish stripe but which is interrupted by the rather broad pale yellow lower border of the sternites and which is much less well defined than in the male; the pubescence is very short and all pale yellowish; seventh sternite (apparently forming part of the ovipositor) black; ovipositor yellow with very short, erect yellowish pubescence.

♂, ♀: Length of body: 4.3-7.5 mm., of proboscis: 3-4.4mm.; breadth (with wings expanded): 10.5-15.5 mm.

This very characteristic and interesting species is known so far only from the neighbourhood of St. Catherine Monastery (Sinai) and at an altitude between 1600 and 2200 metres (see page 106). My assistant Shafik Mostafa Effendi and myself have captured large series of both sexes between the middle of June to the end of August in Wadi El-Legaa always from inside holes in stone walls. Each time the flies had to be disturbed, after which they were caught in the net when attempting to escape. Many specimens were obtained by us in the same way, at an altitude of over 2000 metres, quite close to the summit of Gebel Catherine (2650 metres), also inside holes among the stones which are built along the steep path as a protection against the action of heavy rains.

***Phthiria tricolor* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Ent. d'Egypte*, 1924, 189, 190, 1(♂); Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 140, 151, (♂).

SYNONYMY :

unicolor Bez. (1925), *Bull. Soc. Roy. Ent. d'Egypte*, 1924, 189, 191, 2 (♀); Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 152. (♀).

DIAGNOSIS :

A medium-sized species, distinguished in the male by the bluish-grey thorax and by the frons which bears very sparse short white hairs, and in the female by the whitish-yellow to pinkish-buff frons which possess a small triangular to short arrow-shaped median blackish spot.

DESCRIPTION :

♂ : *Head* entirely black, very much as in *Salmayensis*, but the very short sub-erect, very sparse hairs scattered on the lower part of the frons (the dorsal surface, except the centre, of the antenniferous prominence) is pale yellowish and the argenteous tomentum on the lower border of the frons also extends down on the broad side-cheeks, very much in the same way as in the preceding species; the extreme margin of the mouth is blackish, even when viewed from in front and the very sparse and short pre-marginal hairs are yellowish; ocellar tubercle and occiput as in *Salmayensis*, but the pubescence is all yellowish; proboscis black and longer than the head and thorax together; palpi blackish, rather short and with a somewhat swollen apex where it bears some very short, erect reddish-yellow hairs; antennae very similar in shape to those of the preceding species with the dorsal process on the apex of the third segment large, feebly bent downwards and spine shaped; first segment brownish-black, somewhat paler about the base and yellowish at the extreme tip; second segment brownish-yellow and much paler at the tip; third lancet-shaped segment brownish-black and obscure yellowish-brown near the base ⁽¹³⁾.

Thorax black except the humeral and postalar calli pale yellow and covered with a rather dense whitish tomentum which gives it a characteristic bluish-grey colour; the dorsum bears the usual three darker longitudinal stripes, the median one being divided by a narrow median pale line, very much as in the preceding species, but decidedly less apparent or less distinct; the short pubescence is all very pale yellowish, almost white; pleurae black, bearing a very thin white tomentum but the anterior margin of the mesopleura, the notopleural suture and all about the wing base yellow; ptero-

⁽¹³⁾ Bezzi (1924, *loc. cit.*) in his original description of the male states: « Antennes noires, avec le deuxième article un peu jaunâtre ». My above description is made from the same type specimen and does not agree with that of Bezzi.

pleura with an obscure brownish-yellow median longitudinal stripe which extends all the way down on the posterior margin of the sternopleura to the base of the middle coxae; the pubescence on the mesopleura is short, soft, outstanding and whitish but not dense; sternopleura with similar but much sparser white pubescence and the hypopleura with a row of shorter pale yellowish hairs in the position of the hypopleural row; scutellum brownish-yellow, somewhat darker at the base and with a greyish appearance owing to being covered by whitish tomentum and clothed with short sparse pale yellowish pubescence.

Wings hyaline with a pale brownish-yellow normal venation and all the veins very pale yellow about the base; 1st A cell with a rather long petiole; squamae with a whitish margin and a very short white fringe; halteres whitish-yellow and the stem feebly obscured brownish except towards the tip.

Legs with the coxae and trochanters black but the former brownish-yellow about the apex, ventrally, and the latter yellowish at both extremities; femora blackish-brown and yellow about the apex; tibiae yellow; tarsi blackish but the metatarsi yellowish-brown apically and gradually paler towards the base, where they are yellow (particularly the anterior and middle pair); the pubescence is extremely short, whitish on the femora and blackish on the tibiae and tarsi; claws black but reddish-brown at the base; pulvilli pale yellowish.

Abdomen with the basal segment yellowish; second and third segments pale reddish-yellow with a narrow opaque pale whitish-yellow transverse stripe on the lower border of each segment and the second segment with a narrow transverse blackish stripe close to the upper border; fourth and fifth segments dark reddish-brown (almost blackish in places) with the lower border of each segment reddish-yellow; sixth segment with the basal half dark reddish-brown and the apical half reddish-yellow; seventh segment obscure brownish-yellow; the pubescence is rather long, erect, soft but not dense and pale yellowish-white about the base and sides and the short sub-erect, coarser hairs about the centre of the third to seventh segments are mostly reddish-brown with a few black hairs scattered here and there; venter of almost the same colour and design as the dorsum of the abdomen and with a short sub-erect pale yellowish pubescence; hypopygium reddish-brown but blackish about the base; hooks of dorsal lamellae much resembling those of *Salmayensis* but not bent inwards, somewhat less obtuse apically and bearing a tuft of minute, erect, whitish hairs on the dorsal surface, near the base; the short and broad triangular inner lamellae (of the dorsal lamellae), as in the preceding species but the very short erect tufted hairs on the dorsal surface are whitish; ventral lamellae fused with the two admedian

obtuse spines, and very approximated, on the apical margin much more so than in *Salmayensis*; penis reddish-brown and apparently of the same shape as in the preceding species.

♀ : Rather unlike the male, as in addition to the abdomen being broader as usual and the pubescence much shorter, the colour of the entire body is different.

Head (Pl. XI, figs. 186-188); frons varying from pale whitish-yellow to pinkish-buff with a small median triangular to short arrow-shaped blackish spot whose base is situated on the transverse depression and apex reaching about half way between the depression and the base of the antennae; the very short, adpressed and sparse pubescence is glistening yellowish-white and scattered; the ground colour of the frons (which, when viewed in profile shows distinctly a thin coating of glistening argenteous tomentum) extends down on the very narrow face and on the entire broad side-cheeks except for a small blackish spot edged with reddish-brown, situated on the inner corner and touching the anterior margin of the eye; this latter black spot is present in the type but in the second specimen (the co-type which is the only other specimen known so far) it is totally absent and the upper third of the broad side-cheeks possesses a narrow short blackish stripe which runs obliquely from the upper corner of the mouth margin to about half way between the latter and the margin of the eye; when examined from in front the type specimen shows, in addition to the two black spots described above, two smaller, oval blackish spots, one on each side of the upper corners of the mouth margin (in the position of the blackish stripes found in the co-type); ocellar tubercle blackish, with very short yellowish hairs; vertex and occiput of the same yellow colour as that of the frons and face but with two broad, admedian, elongate ovate, longitudinal black stripes which are isolated from each other; the pubescence on the occiput is short, not dense, all pale yellowish and is a little longer, softer and whitish below, on the chin which is yellow like the side-cheeks; antennae with the reddish-yellow or yellow colour more extensive, the two basal segments being almost entirely yellow except about the tip feebly obscured and the blackish third segment possessing the basal half brownish-yellow ventrally.

Thorax yellow with the black longitudinal stripes on the dorsum very broad (Pl. XI, figs. 189 and 190) but appearing greyish-black owing to a fairly dense but very fine whitish tomentum, and clothed with very short, adpressed glistening yellow pubescence except near the lower border where a few much longer erect bristly hairs (also yellow) are scattered here and there; notopleural suture with a conspicuous triangular black spot on the anterior half; pleurae ivory yellow with a large black spot on the lower half of each of the mesopleura, the sternopleura, the hypopleura and a smaller

black spot on the lower half of the pteropleura; the usual sparse soft, outstanding pubescence on the pleurae is white; scutellum of a unicolorous rather pale yellow colour with very short yellowish pubescence except for a few much longer erect coarse yellowish bristly hairs about the margins and apex.

Wings as in the male but the veins are of a paler yellow colour.

Legs entirely pale reddish-yellow except the extreme apex of the trochanters and base of the femora blackish; the tarsi are, as usual obscure blackish towards the apex and which colour is mainly due to the minute dense black pubescence.

Abdomen almost unicolorous reddish-yellow but the lower third or so of all the segments is somewhat paler, being of a true whitish-yellow colour; the very short, adpressed rather coarse pubescence is black all about the centre, reddish-yellow or brownish near the sides and much longer, more erect and pale yellowish all about the base, sides and apex; venter of a uniform reddish-yellow colour with short pale yellowish pubescence; ovipositor yellowish-red with minute black pubescence dorsally and short erect tufted whitish hairs about the apex.

♂, ♀ : Length of body : 5.5-6 mm., of proboscis : 4-4.5 mm.; breadth (with wings expanded) : 13-13.9 mm.

Three specimens only are known of this species, one male (the type) and two females (the type and co-type). The female (type) was originally found by me drowned in a small pool of rain water in Wadi Rashid (one of the upper branches of Wadi Hoff) on April 16th, 1921, and the other pair (the male type and the female co-type) were captured by me, a year later in Wadi Hoff, near Ogret el-Sheikh on May 11th. I do not possess any other record of *P. tricolor* from Egypt, and as far as I am aware it has not been found elsewhere.

***Phthiria xanthaspis* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 190, 192, 3; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 142, 153.

DIAGNOSIS :

A small fly, at once distinguished from the other Egyptian species by the dorsal process at the apex of the third segment of the antennae being very small, indistinct and not spine-shaped, and by the usually blackish legs in both sexes; body of male black, covered with dense white tomentum which gives it an ashy grey appearance and clothed with long, outstanding, soft, almost furry white hairs; body of female yellow and blackish covered with a yellowish tomentum and with dense short, mainly adpressed and coarse yellow pubescence.

DESCRIPTION :

♂ : *Head* (Pl. XI, figs. 191 and 192) black and almost entirely covered with a glistening argenteous tomentum which is absent (best seen when viewed in profile) on a transverse, somewhat triangular, velvety black stripe or spot, whose very broad base is situated on the anterior margin of the eye and its apex near the base of the antennae; frons with a rather characteristic argenteous pubescence which consists of dense tufted and closely adpressed short hairs situated on the centre of the antenniferous prominence and with a weak but distinct median partition, on both sides of which the hairs are directed forwards and outwards, as if they had been parted and brushed; face almost obsolete, consisting only of the very broad side-cheeks which are clothed with long rather numerous and outstanding white hairs whose tips are directed inwards; when viewed from in front the mouth margin is yellowish; ocellar tubercle with a tuft of rather long, erect and forwardly directed white bristly hairs (about as long as those of the side-cheeks); occiput with somewhat shorter erect and not dense whitish bristly hairs above, but which leave all the posterior eye margins bare, and below, the pubescence is somewhat longer as usual, more dense and pure white, particularly on the chin; proboscis black and about as long as the head and thorax together; palpi black to obscure blackish-brown, short, almost of uniform breadth and with sparse erect microscopic reddish-brown hairs about the sides and tip; antennae blackish but the extreme apex of the second and base of the third segments are often brownish-yellow; first and second segments with a few very short yellowish or brown bristly hairs about the tip, dorsally; third segment somewhat broad fusiform, as its broadest part is not at the base but before the middle (although narrower at the apex than at the base) with the dorsal process at the tip very minute, broad spine-shaped and bearing a very few (about five) minute yellowish bristly hairs on the dorsal side near the base.

Thorax black except the lateral edge (and sometimes the dorsal as well) of the postalar calli yellowish and covered with a very dense fine white tomentum which gives it a characteristic ashy grey appearance; the usual three darker longitudinal stripes on the dorsum are either absent or very pale and ill-defined; the pubescence is all white, long, erect and fairly dense, particularly anteriorly on the sides where it is somewhat tufted, almost furry; pleurae unicolorous ashy grey with long outstanding soft white hairs on the mesopleura and sternopleura and some similar but shorter white hairs on the posterior margin of the hypopleura; scutellum uniformly ashy grey like the dorsum of the scutum and with a similar, long, upstanding soft white pubescence.

Wings hyaline, with a well marked yellowish-brown normal venation and with the veins yellowish at the base, as usual; occasionally an additional

cross-vein is present on the basal fourth of 1st M_2 cell; 1st A cell with a more or less short petiole; squamae with a yellowish-white margin and a short, slight white fringe; halteres more or less pale ivory yellow with the stem obscure brownish about the base.

Legs varying from entirely blackish-brown to quite pale brownish with the femora darker towards the base and clothed with a very short adpressed yellowish-white pubescence which is much longer and outstanding on the postero-ventral sides, particularly on the front femora; on the tarsi the minute bristly pubescence is blackish and as usual, contributes much to obscure the colour of the segments (in the pale coloured forms the metatarsi are also brownish-yellow); claws yellowish-brown except at the tip black; pulvilli pale yellowish.

Abdomen unicolorous ashy grey but often the white tomentum may be absent on the upper border of the segments forming ill-defined darker brownish-black transverse bands or sometimes the brownish-black stripes on the third to seventh segments may extend on most of the upper half of the segment, being somewhat triangular in shape with the apex of the triangle situated towards the middle and the broad base on the upper border of the segment: the pubescence is all whitish erect and very long (longer than on the thorax except for some short usually white, but occasionally yellowish, sub-erect hairs about the centre) but not dense, except about the base on the sides, where it is quite tufted; venter uniformly ashy grey with much shorter, soft, white pubescence; hypopygium (Pl. XI, figs. 193 and 194) clothed with longish erect reddish-yellow hairs and blackish except the hooks of the dorsal lamellae and the penis more or less dark reddish-brown; dorsal lamellae each, with the outer hook totally absent, and with the inner small lamellae broad triangular at the base only, but very narrow elongate on the apical half, somewhat hook-shaped (obtuse apically) and bearing very stiff blackish hairs dorsally, which are less dense but longer than in the other three preceding species; fused ventral lamellae much longer and narrower than in the other species and with two broad-triangular and very obtuse admedian extensions instead of the admedian blunt spines present in *tricolor* and *Salmayensis*.

♀ : Rather distinct from the male.

Head (Pl. XI, figs. 195 and 196) entirely pale whitish-yellow to pale reddish-yellow with a blackish stripe extending up from the middle part of the occiput, over the ocellar tubercle (and of the same width as the latter) and down on the frons, but where it gradually widens downwards with its side margins about parallel with the inner front margins of the eyes and thus covering the greater dorsal surface of the antenniferous prominence to the base of the antennae; this blackish colour sends down from near the

apex of the prominence on the upper part of the broad side-cheeks, on each side, an obscure blackish stripe which may be conspicuous, narrow and reaching down to the front margin of the eye, or less apparent, short triangular and reaching only about half way to the eye margin; the pubescence is much sparser everywhere, much shorter as usual and all yellow or yellowish. Antennae quite as dark as in the male.

Thorax with the dorsum black but extensively yellow on the sides, covered with a rather dense yellow tomentum which gives it a light brown to brownish-grey appearance and with the much shorter, mostly adpressed pubescence all glittering pale yellowish; pleurae grey with the upper border and posterior half of the pteropleura, the anterior border of the mesopleura and the propleura, the upper half of the sternopleura and the hypopleura yellow to pale greyish-yellow; scutellum yellow with a blackish median, obtuse triangle resting on the base and with a correspondingly short but rather coarse yellowish pubescence.

Legs always very dark blackish-brown except the apex of the coxae yellow.

Abdomen black, except the basal segment yellow, and of a unicolorous deep colonial buff colour (in well preserved, unrubbed specimens) owing to the short, mostly adpressed rather dense glittering pale yellow pubescence; venter grey and usually more or less extensively greyish-yellow about the base; ovipositor yellowish-grey with very short erect whitish or pale yellow pubescence.

♂, ♀ Length of body : 2.8-5 mm., of proboscis : 2.4-3.5 mm.; breadth (with wings expanded) : 5.3-9.5 mm.

Bezzi (1925, *loc. cit.*, p. 192-3), before giving his rather short description of *P. xanthaspis* says that this small species belongs to the *pulicaria* (Mikan) group and is very closely allied to *canescens* Lw. from which it differs by the white halteres; he further states that it is similar to *minuta* F. and *vagans* Lw., as it possesses, like the latter, the scutellum in the female yellow but the wings entirely hyaline in both sexes. All this is somewhat vague and, as I am not acquainted with the above four species used by Bezzi for his comparisons, I am unable to formulate an opinion, but nevertheless I am inclined to be very cautious especially after such an erroneous statement as «the scutellum, in the female yellow». Many other corrections and additions to Bezzi's description of *P. xanthaspis* will be found above.

This species is not uncommon but known from two districts only in Egypt, so far. I have captured it in large numbers at Burg-el-Arab (Mariout) between the middle of April to the middle of May and also from many localities West of Cairo, such as Abu Rawash, Kafr Hakim and Kerdasah between April 5th to May 10th. I have also collected one specimen

at Solloum in April. As a matter of fact the males are much less common than the females as they are represented in our collections in the proportion of about one to five and the very few males (three or four) exhibiting the palest coloured legs are only among those originating from the localities West of Cairo.

CROCIDIUM

(Loew, 1860, *Öfv. Vet. Acad. Vörhandl.*, XVII, 85, 7).

TYPE OF THE GENUS :

poecilopterum Lw. (1860), *Dipt.-Faun. Südafrik.*, 195, Tab. XI, f. 8.

Small to medium sized weakly pubescent flies bearing a general resemblance with the *Therevidae* owing to their elongate antennae (the first segment), the prominent, nose-shaped face, and the usually spotted wings.

Head much broader than high and a little broader than the thorax (distinctly more so in the female); eyes in the male either meeting on the frons (as is said to be in *poecilopterum* Lw.) or very approximated and distinctly separated by a more or less narrow space and with the facets on the upper part enlarged, but in the female they are widely separated by a space which often occupies quite the entire middle third of the breadth of the head (i.e. as broad as one eye); ocellar tubercle rather prominent in both sexes; occiput flat; face produced forward, nose-shaped below, more so in the female where it is almost as long as the first segment of the antennae, and the mouth margin is directed obliquely backwards (from the upper nose-shaped border) leaving fairly broad genae with furrows; proboscis usually rather long, feebly arched apically and comparatively stout but without the basal thickening which is present in *Usia*; palpi more or less elongate and sometimes so closely adpressed to the sides of the proboscis that it is very difficult to examine their structure but in the two species from Egypt they consist of a long basal segment and a short (much shorter) apical segment. Antennae elongate owing to the first segment being quite half the length of the third segment and much longer than the very short cup-shaped second segment; third segment ending by a short to minute one-segmented cylindrical style bearing a microscopic apical hair or bristle.

Thorax and scutellum in the male bearing very short adpressed hairs, often scaly hairs, or scales as well as long, upstanding hairs and in the female the scaly hairs or scales (when present in the male) are much more numerous and usually of a darker colour than in the male; pleurae with sparse long hairs and with more numerous scales.

Wings often of a more or less apparent opaque milky white and sometimes ornamented with brown spots; the Sc reaches the costa and the latter is strong all around the wing to the axillary lobe; r-m cross-vein not perpendicular and always placed near the apex of 1st M_2 cell; this latter sends three veins to the lower wing margin; vein M_1 convex, its last section deeply bent down and much longer than the length of 1st M_2 cell; 1st A cell closed at, or a little before the margin (with a short petiole) but in *poecilopterus* it is said to be open; halteres with a rather long stem and a large knob.

Legs of about the same length and strength as in *Phthiria* but real hairs are found only on the coxae and on the ventral side of the femora, the rest of the surface of the legs being covered with adpressed scales; tibiae with sparse rows of minute spiny bristles or bristly hairs; empodium normally developed.

Abdomen in the male somewhat short, cylindrical, clothed with long, upstanding but not dense pubescence as well as with sparse short adpressed scales, while in the female it is longer, conical with the longer upstanding pubescence (much shorter than in the male) very sparse, being mainly present on the sides and with abundance of short adpressed scaly hairs on the dorsum; male genitalia fairly large and well exposed; female ovipositor usually concealed, but when exposed, showing a row of three or four spines on each side.

Until 1923, when I first captured a series of *C. aegyptiacum* Bez. in the Mariout district the genus was considered to be typically Ethiopian. Bezzi, 1925 (*loc. cit.*, p. 193), before giving the description of *C. aegyptiacum* writes: « C'est une bien importante découverte que de trouver ce genre éthiopien en Egypte; il est distinct du genre *Phthiria* surtout pour avoir la côte alaire complète et par le premier article des antennes plus long. Cette nouvelle espèce n'est pourtant pas typique, car elle diffère de *poecilopterus* par les yeux du mâle plus écartés; sa face est comme chez *nigrifacies* du Cap, qui a les ailes immaculées ». The addition of *C. nudum* nov. spec. to Bezzi's species brings the number of species from Egypt to two and these are the only representatives of the genus in the Palaearctic Region.

I have been able to make a few corrections and additions to Bezzi's and Engel's (1937, *loc. cit.* p. 175) interpretation of the genus, particularly as regards the structure of the palpi. These in *C. nudum* are distinctly two-segmented, a character which agrees with Loew's description of the type of the genus.

TABLE OF SPECIES

- 1 (2) Body in male with some short closely adpressed scales and long

rather dense outstanding pubescence, in the female with much more numerous scales and much shorter and more sparse pubescence; wings with four and occasionally five brown spots; style of third segment of antennae minute, conical; proboscis almost twice the length of the head (including the antennae) and comparatively thin; palpi narrow, shorter than half the length of proboscis

aegyptiacum BEZ.

- 2 (1) Body in both sexes without scales and with sparse short (very short in the female) sub-erect hairs; wings with six brown spots; style of third segment of antennae small, cylindrical; proboscis stout, much shorter than the length of the head (including the antennae); palpi broad and quite half the length of the proboscis

nudum NOV. SPEC.

***Grocidium aegyptiacum* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 190, 193, 4; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 176, f. 94-96.

DIAGNOSIS :

A small brownish-grey (the male) or yellow ochre (the female), *Phthiria*-like species, at once distinguished by the antennae, in which the third segment is twice the length of the first, and by the four brown spots on the wing.

DESCRIPTION :

♂ : *Head* (Pl. XII, figs. 197 and 198) blackish but the occiput covered with thin white tomentum which gives it an ashy grey appearance and on most of the anterior part of the head (frons, face and genae) the tomentum is dense and glistening silvery white; frons very narrow elongate above, as the eyes, although much approximated, do not quite touch; the most prominent part of the face is shining blackish or dark brown, free from tomentum but the entire margin of the mouth is more or less pale yellow; the pubescence on the frons is absent but on the lower part of the face (above the upper mouth margin) and on the lower half of the genae it is very characteristic, consisting of fairly dense, long outstanding white hairs whose apex is bent inwards; the well raised ocellar tubercle is dark grey owing to fine, very sparse white tomentum and is clothed with some longish upstanding pale yellowish hairs; occiput with fairly dense short whitish pubescence which often has a yellowish tinge, above, behind the vertex, and which is of a pure white colour and much longer and softer below; in addition the outer

borders of the occiput (immediately behind the eyes) is clothed with short, closely adpressed, glistening silvery white scales; proboscis entirely black, feebly arched downwards and about one and a half times as long as the head (including the antennae); palpi dark reddish-brown, very thin and shorter than half the length of the proboscis and are often so closely adhering to the sides of the latter that the short apical segment is indistinguishable; the palpi are clothed with very sparse minute erect whitish hairs; antennae entirely black but covered with very sparse, fine white tomentum which gives them a dark greyish appearance; first segment at least three times the length of the very short, rounded cup-shaped second segment, and both segments with short but sparse, sub-erect whitish hairs, those on the sides and beneath the first segment being usually much longer; third segment bare, about twice the length of the first and with a very small short conical style at the apex, ending in a minute whitish hair.

Thorax black but covered with a fairly dense tomentum which is almost pure white all about the borders and distinctly yellowish about the centre and which makes it appear pale ashy grey on the borders and brownish-yellow about the centre; the design on the dorsum is usually obscure, ill-defined but in unrubbed specimens the median stripe is represented by two narrow admedian dark grey stripes on the upper half of the disc only, and the two side stripes by two dark rounded areas with very ill-defined margins, one on each outer middle third; the vestiture consists of sparse short adpressed scales which are yellow about the centre of the disc and pure silvery white and rather more numerous about the margins (especially the anterior margin) and of rather long outstanding but not dense yellowish pubescence, which is somewhat coarse and rather bristly on the sides (in front of, and above the base of the wing); pleurae entirely grey, fairly densely covered with short closely adpressed silvery white scales and the mesopleura only with some sparse long shaggy white hairs; scutellum ashy grey like the sides of the mesonotum and with a similar vestiture consisting of sparse short closely adpressed pale yellowish to white scales and of long upstanding and forwardly directed whitish hairs.

Wings (Pl. XII, fig. 199) possessing a feeble but distinctly milky opaque colour, with a well marked dark brown (almost blackish) venation except about the base, most of the Sc and the basal half of R_1 yellow, and with four or occasionally five characteristic brown spots, one on the base of R_4 vein (on the base of fork R_4+R_5), one on the r-m cross-vein, one on the m cross-vein and one on the vein Cu_1 ; the fifth brown spot, when present is situated on the base of the stem of R_4+R_5 and is usually much smaller than the four others; sometimes all the spots are very pale and consequently inconspicuous; r-m cross-vein placed rather obliquely on the distal fifth of 1st

M₂ cell; 1st A cell very variable, either closed at the lower margin or just before the margin with a very short petiole, or it may be narrowed but distinctly open at the margin; squamulae with a pale yellow margin and a slight short whitish fringe; knob of halteres cream colour and the stem is brownish-yellow, obscured at the base only and of the same cream colour as the knob elsewhere.

Legs entirely black except the knees (extreme apex of femora and base of tibiae) brownish-red or brownish-yellow and clothed with fairly numerous short adpressed white scales and with sparse very short white pubescence except on the coxae and beneath the femora where the white hairs are much longer and softer; tibiae with sparse rows of minute black spicules; claws reddish-brown but black about the apex; pulvilli pale reddish-yellow.

Abdomen short conical, black but covered with white tomentum and with a narrow transverse whitish to pale yellow band on the lower border of all the segments; the pubescence is long, upstanding and rather dense (almost tufted) and in addition, the abdomen bears very few short adpressed white scales scattered about the centre of the dorsum; venter dark grey with the lower border of the sternites yellowish and with rather numerous short adpressed white scales; the erect pubescence on the venter is sparser and shorter than on the dorsum; genitalia (Pl. XII, figs. 200 and 201) dark reddish-brown with short sparse whitish pubescence; median claspers with a large, strong cylindrical (although bent) base (basal segment) and each with an apical deeply recurvate spine; dorsal lamellae very short; ventral lamellae short conical and yellowish about the apex.

♀ : With a much shorter pubescence and the vast majority of the short closely adpressed scales on the head, thorax and abdomen, in addition to being much more numerous than in the male, are of a bright yellow colour.

Head (Pl. XII, figs. 202 and 203) very broad, almost quadrate owing to the separation of the eyes at the vertex being very wide, quite equal to the breadth of one eye and the distance between each upper inner eye margin and the ocellar tubercle is almost equal to the breadth of the latter; frons with a rather large, deep median depression and the short adpressed scales cover it, as well as the vertex and the occiput and the scales are mostly yellow but pure white only on the orbits; the erect pubescence on the vertex and occiput is sparse, much shorter than in the male and usually yellow; face shining black as in the male but distinctly large and more produced forward; the lower margin of the latter as well as all the cheeks (which are also broader than in the male) are yellow to reddish-yellow and the white pubescence, present only on the cheeks and jowls is sparser and much shorter than in the male.

Thorax with the short adpressed scales much more numerous on the disc

and mostly yellow except on the lateral borders white, and the sparse and much shorter pubescence is more or less pale yellow; scutellum densely covered with adpressed yellow scales and with sparse upstanding yellow hairs which are shorter than in the male.

Abdomen somewhat longer and broader than in the male, and with a ground colour and design similar to it but the dorsum bears much more numerous short adpressed, all yellow scales and with a corresponding reduction in the density and length of the yellow pubescence; ovipositor (Pl. XII, fig. 204) yellowish-brown with short erect but soft reddish-yellow hairs and, when not concealed, with a row of about three to four narrow, short, outwardly bent yellow spines on each side.

♂, ♀ Length of body : 4.4-4.9 mm., of proboscis : 1.9-2.3 mm.; breadth (with wings expanded) : 6.4-8.6 mm.

I have captured a series of 17 males and 10 females, including Bezzii's types between 10-20.IV.1923-25 at Burg el-Arab, Mariout. Most of them were caught while feeding on the flowers of *Calendula* and other bright coloured *Compositae*. There is no other record of this species from other parts of Egypt, and it is not known from any other country.

Crocidium nudum NOV. SPEC.

DIAGNOSIS :

A small dark brownish-grey fly not unlike *aegyptiacum* in general appearance but easily distinguished from it by the more numerous brown spots on the wings, the absence of scales on the body in both sexes, as well as by the antennae, proboscis and palpi.

DESCRIPTION :

♂ : *Head* (Pl. XII, figs. 205 and 206) black; frons covered with silvery white tomentum which is rather less dense and less glistening than in *aegyptiacum* and broader above owing to the eyes being less approximated and separated by a distinctly wider space at the vertex; the thin tomentum extends down on the entire face and cheeks which, owing to the black background, appear dark grey but all the margin of the mouth is yellow; the pubescence which on the anterior part of the head is found only on the sides and lower part of the face as well as on the genae is sparse, scattered and much shorter than in *aegyptiacum*, although the individual hairs are outstanding with the apex bent inwards and pale yellowish; on the jowls the pubescence is a little more dense, softer and white as usual; occiput similarly tomented, and consequently of the same colour as, that of *aegyptiacum* but without real scales except around the outer margins only (bordering the hind margins of the

eyes) there are a few scattered short adpressed white scaly hairs, which are a little more numerous below and extend down on the jowls; in addition the occiput is clothed with very sparse short upstanding pale yellow hairs; ocellar tubercle dark grey with a few elongate yellowish-white hairs; proboscis black but thicker and much less elongate than in *aegyptiacum*, being shorter than the length of the head (including the antennae) and quite straight (not at all arched); palpi black, much thicker but much longer than in *aegyptiacum* being distinctly longer than half the length of the proboscis and with the basal segment at least six times the length of the short but distinct apical segment; palpi with very sparse, short erect pale yellow pubescence; antennae entirely black but covered with a thin white tomentum which, in certain lights gives them a dark greyish appearance; first segment only twice as long as the second and both segments with very sparse, short, sub-erect pale yellow hairs; third segment bare, sub-cylindrical, about one and a half times the length of the first two segments together or twice the length of the first segment, and with a short but thick cylindrical apical style which is much larger than in *aegyptiacum* and ending by a very short yellowish bristle.

Thorax of the same ground colour, tomentum and design as in *aegyptiacum* but of a somewhat darker grey colour owing to the pale yellowish pubescence being very sparse and much shorter; the vestiture consists of a few very short adpressed whitish scaly hairs scattered about the margins and of a most insignificant pubescence composed of even fewer, short erect pale hairs scattered here and there; pleurae dark ashy grey and only with a few short outstanding whitish hairs on the mesopleura, even fewer similar hairs on the upper part of the sternopleura and without short scales or scaly hairs; scutellum similarly coloured and tomented as the mesonotum but with rather more numerous (proportionally) pale yellow scaly hairs and with sparse longish upturned pale yellow hairs somewhat concentrated about the margin.

Wings (Pl. XII, figs. 207 and 208) of a distinct dirty milky colour with a well marked dark brown (almost blackish) venation which is hardly paler about the base and with about six more or less apparent brown spots as follow: one on the base of vein R_4 (on the base of fork R_4+R_5), one on the base of the stem of R_4+R_5 , one on the r-m cross-vein, one on each of the cross-vein-like outer border of 1st M_2 cell, one on vein Cu_1 , and one usually paler brown spot on the apex of 1st A cell; this latter spot, as well as the spot on the base of the stem of R_4+R_5 are often very pale and the two spots on the outer border of 1st M_2 cell usually run together forming one brown stripe; r-m cross-vein placed rather less obliquely than in *aegyptiacum* and on the distal third of 1st M_2 cell; in the right wing only of the type, R_3 cell is divided into three cells owing to the presence of two cross-

vein-like veins joining vein R_2+3 with vein R_4 , one near the base of the latter and the second towards the middle of R_4 and near the apex of vein R_2+3 (Pl. XII, fig. 207); 1st A cell apparently variable, for although in the only two males known it is closed at a short distance from the lower margin and consequently with a small petiole yet in the female (seven specimens) the three conditions found in *aegyptiacum*, are also present (i.e. closed before the margin and short petiolate, closed, or open at the margin); squamulae with a pale brown margin and a very slight and very short whitish fringe; halteres with the knob and apical half of the stem cream colour and the basal half of the latter obscure brownish.

Legs dark brownish-black except the knees (extreme apex of femora and base of tibiae) brownish-red as in *aegyptiacum* but with the femora only bearing less numerous short adpressed white scales; the insignificant very short sub-erect pale pubescence is even shorter than in *aegyptiacum*; coxae with a few short white scales and still fewer short outstanding whitish hairs; the rows of minute black spicules on the tibiae are reduced to about one very sparse ventral row; claws and pulvilli as in *aegyptiacum* but proportionally smaller.

Abdomen black, covered with an extremely thin, sparse white tomentum which hardly alters its colour and with a very narrow (much narrower than in the preceding species) transverse pale yellowish band on the lower border of most of the segments; the pubescence, which is all pale yellowish or whitish, consists of rather numerous very short adpressed, somewhat coarse hairs (a very few of which may not even be called scaly) and of some (quite sparse) longer (but by no means long) outstanding hairs mainly on the sides; venter black with the lower border of the sternites pale yellow and with a very sparse and very short insignificant whitish pubescence; hypopygium (Pl. XII, fig. 209) blackish with very short erect but soft whitish pubescence; dorsal lamellae sub-quadrate and yellowish-brown at the apex; median claspers with a very large conical basal segment and a thick spine-shaped recurvate apical hook; ventral lamellae so short that they appear obsolete.

♀ : Not very different from the male (except the head) as the pubescence is only shorter and hardly more yellowish.

Head (Pl. XII, figs. 210 and 211) almost as broad and as quadrate as in the female of *aegyptiacum*; the background, shape and tomentum of the head are the same as in the preceding species but the scales on the frons, vertex and occiput are of a uniform pale yellow colour and very sparse, and the pubescence on these regions is also very sparse, very short and pale yellowish; face, genae and jowls of about the same shape and colour as in the female of *aegyptiacum* but the pubescence is correspondingly sparse and very short.

Thorax, scutellum and *abdomen* almost as in the male, as the very few short adpressed coarse pale yellow hairs (which can hardly be called scaly) are hardly more numerous and the longer, erect (but also very sparse) pubescence on the sides and borders is hardly darker and a little shorter than in the male.

Legs as in the male or with the pale yellow colour of the knees more extensive, sometimes very much so, in which case the metatarsi of the front legs are yellowish at the base and those of the middle and hind legs also yellowish except at the apex dark brown; in one case, the legs are entirely brownish-yellow except the femora feebly obscured towards the base.

Wings as in the male and vein R_2+3 also showing a tendency to emit a stump in R_3 cell above the brown spot on the base of vein R_4 ; occasionally this stump is prolonged down to vein R_4 (near its base) on both wings forming an extra cross-vein which divides R_3 cell into two cells. Ovipositor yellowish-brown, with very short erect but soft whitish hairs and as in *aegyptiacum*, and when not concealed, with a row of about four short, narrow, outwardly bent, yellow spines on each side.

♂, ♀ Length of body : 2.5-4 mm., of proboscis : 0.5-1.1 mm.; breadth (with wings expanded) : 3.8-6.8 mm.

Two males and seven females, including the types, are known so far of this species. Both males were captured by me at Burg el-Arab, Mariout, on April 18th 1925, but out of the seven females, five were collected at the same locality and date in 1925 and 1928, and the two other females originate from Ein Gedeirat, Qossayema (North Sinai), 15.IV.1938. The two last mentioned specimens are a little smaller in size (my smallest measures are obtained from one of these) than the Mariout specimens, the wings have a feeble but distinct brownish tinge and the legs are much paler; in all other respects however they are identical with the Mariout specimens.

GERON

(Meigen, 1820, System. Beschreib., II, 223, LXIII).

TYPE OF THE GENUS :

gibbosus Olivier (1789), Encyclop. Méthod., IV, 329, 21 (*Bombylius*).

Small to medium-sized, deeply humpbacked, sometimes rather densely furry flies with the basal segment of the antennae long and thin, more than twice as long as the second segment, a long, rather triangular scutellum and usually with a short conical abdomen and delicate legs.

Head hemispherical, much higher than long in profile, and about as broad as the thorax; eyes in the male with the upper facets enlarged and

in contact for a long distance in the middle line above, and anteriorly depressed and produced conically upwards, thus in profile appearing nearly triangular; in the same sex consequently, the frons is reduced to a very small triangle above the base of the antennae, which may be quite bare or covered with dense closely adpressed, short, argenteous scales; in the female the frons is broad and only a little narrowed above, towards the vertex; the face is about as long as the first, or first and second segments of the antennae together and is produced feebly forward on its posterior half in a short snout-shaped projection above the upper margin of the mouth; the presence or absence of short or long and tufted hairs, as well as scales on the sides of the face or about the middle as well (except on the clypeus which is always bare), afford rather reliable distinctive characters; ocellar tubercle moderately raised; occiput almost flat and generally bearing long dense pubescence and often scales as well; proboscis usually about as long as the length of the head and thorax together, but occasionally it may be much shorter; palpi rather short and one-segmented; antennae with the basal segment long, narrow, cylindrical and more than twice the length of the short, cup-shaped second segment; third segment usually elongate conical and gradually tapering to a long point always ending by a microscopic sensory hair, but it may possess the basal half ovate and the apical part very thin and styliform.

Thorax rather humpbacked, bearing long, fairly dense, sometimes quite furry pubescence which is frequently mixed with short, small, adpressed scales and this vestiture, together with that of the scutellum and the abdomen, presents sometimes distinct sexual dimorphism being white or grey in the male and yellowish or even ochreous in the female; in addition the body is clothed with black or blackish-brown and white tomentum which, together with the pubescence are extremely delicate and easily rubbed off; body without bristles; metapleura bare, but on the rest of the pleurae the pubescence is generally long and tufted, especially on the mesopleura; scutellum distinctly long and rather triangular.

Wings hyaline in all the palaearctic species; vein R_5 straight to the end; the costa is strong and thickened to the tip of the wing (a little after the end of R_4) after which, although less strong, it distinctly follows the lower margin to the apex of the 1st A cell, but occasionally it may follow the margin to the axillary lobe (in *G. longibarbus* nov. spec.); 1st A cell almost always closed at a rather long distance from the margin and the 1st M_2 cell usually emits two veins ($M_1 +_2$ and M_3) to the margin, but in *G. longibarbus*, 1st A cell is open and 1st M_2 cell sends three veins, M_1 , M_2 and M_3 ; alula and axillary lobe almost always strongly developed; squamae with a more or less long fringe; halteres with a longish stalk and usually a very large knob.

Legs delicate, fairly long but weak and with dense, closely adpressed scales on the femora and tibiae; femora unarmed but the middle and hind tibiae are provided with distinct spicules; claws and pulvilli well developed.

Abdomen from broad to elongate-conical but occasionally narrow-elongate and only a little narrower at the tip than at the base (*G. longiventris* nov. spec.); it consists of seven apparent segments and is often narrower in the male than in the female; the vestiture (pubescence and scales) is similar to that of the thorax; the male hypopygium is large, generally well exposed and apparently similar in construction as in the genus *Bombylius*, with the exception that the ventral lamellae are much more strongly developed. Ovipositor without spines except in *longibarbus* nov. spec.

The type of the genus, *gibbosus* Oliv. is parasitic in Lepidopterous larvae of the genera *Nephopteryx* and *Fumea*. Mik (1896, *Wien. Entom. Zeitg.*, XV Jahrg., 106) writes that larvae of *Nephopteryx sublineatella* Staud. (*Pyrilidae*) and *Fumea crassiorella* Bruand (*Psychidae*) collected by Mr. O. Werner in Dalmatia (Sabioncello) at the beginning of June, gave rise in the following month to the three males of *G. gibbosus*, one of which was from *Nephopteryx*, while the other two were from *Fumea*. Mik thinks that one may be justified to suppose that other species among the smaller *Lepidoptera* may also serve as hosts of *G. gibbosus*. I have often captured numerous individuals belonging to our desert species of *Geron* hovering on low shrubs and plants growing in the close vicinity of *Acacia tortilis* Hayne on which the Pyralid *Tachypteryx acanthotecta* Rebel is a common host; also near *Thymelaea hirsuta* L. on which our familiar Psychid *Amicta quadrangularis* Christ. feeds.

The species with the widest geographical distribution, *gibbosus* Oliv. is subject to considerable variation, in colour and size and it is not without sound reason that Loew, long ago stated that in the Mediterranean and Ethiopian Regions but a single very variable species of this genus is present. It is curious to find that nearly all the other described forms from the Mediterranean or from the Ethiopian Region, as late as 1924, when Bezzi (1924, *Bombyl. of the Ethiop. Region*) revised the genus and gave a key to eleven species, have proved to be synonyms of the type of the genus as follows: *G. hybridus* Meig. (1804) and *G. gibbosus* Meig. (1820) from Southern Europe, North Africa, Syria and in fact from North to South and from East to West Africa; *G. halteralis* Meig. (1820) from Portugal; *G. Olivieri* Macq. (1840) from the Greek Archipelago, and *G. capensis* Walk. (1852) from the Cape.

It is unfortunate that Bezzi (1925, *loc. cit.*, 1924, 196) in his original description of *G. intonsus* commits a serious error in writing: « the face, instead of being bare on the middle, is all covered with long white hairs

which are a little longer in the male ». This error, according to Engel (1937, *loc. cit.*, pp. 131-132) is repeated by the same author in the description of *G. mystacinus* Bez. from Asia Minor (Mersina) which I have not seen, but which is said to have also a bare clypeus.

Only three species were known hitherto from the Palaearctic Region, one of which, *gibbosus* Olivier is represented by three more or less distinct colour and size varieties; the three new species described here, brings the number of Palaearctic species to six, of which five belong to our fauna.

TABLE OF SPECIES

- 1 (10) At least entire middle third of face bare.
- 2 (5) Sides of face densely covered with very long hairs which are so tufted and decumbent that the entire face appears hairy.
- 3 (4) Pubescence on dorsum of basal segment of antennae white; wing venation normal with 1st A cell closed at some distance from the margin and 1st M_2 cell emitting two veins to the margin. **intonus** BEZ.
- 4 (3) Pubescence on dorsum of basal segment of antennae black; wing venation not normal with 1st A cell open and 1st M_2 cell emitting three veins to the margin. **longibarbus** NOV. SPEC.
- 5 (2) Sides of face bearing hairs and scales or scales only but which are never so long or so tufted as to hide the middle third.
- 6 (7) Sides of face with longish hairs and scales; frons of male covered with dense, closely adpressed argenteous scales, of female short yellow scales (except about the base, white) and coarse, longish yellow hairs; pubescence on dorsum of basal segment of antennae reddish-brown to blackish; abdomen unusually narrow and elongate. **longiventris** NOV. SPEC.
- 7 (6) Sides of face with longish hairs and scales, with elongate scales only, or with quite short scales and hairs; frons of male almost entirely bare, except for a very few short scales below on the extreme sides, of female bearing short white scales and some longish, not coarse white hairs; pubescence on dorsum of basal segment of antennae white; abdomen broad and conical. **gibbosus** OLIV.
- 8 (9) Sides of face with elongate scales and hairs or elongate scales only; general pubescence on body yellow; legs with the femora extensively yellow in both sexes; medium-sized to large (largest) form. **var. erythropus** BEZ.
- 9 (8) Sides of face with short scales and hairs or short scales only; general pubescence on body white; legs with the femora entirely blackish

in both sexes; small or very small (smallest) form
 **var. halteralis MEIG.**

- 10 (1) Face with sparse, longish white hairs, which are scattered almost on all the centre but leaving only a small median triangular space immediately above the mouth margin (the clypeus) bare; frons of male densely covered with closely adpressed, argenteous scales as in *longiventris*; of female bearing some longish white hairs about the middle and short argenteous scales which are very dense below (above the base of antennae) **garagniae NOV. SPEC.**

Geron garagniae NOV. SPEC.

DIAGNOSIS :

A medium-sized to rather small species, at once distinguished by the sparse, longish outstanding white pubescence on the face which only leaves a median triangular space (the clypeus) bare.

DESCRIPTION :

♂ : *Head* (Pl. XIII, figs. 212 and 213) black; frons entirely covered with dense very adpressed argenteous to pale yellowish (probably soiled) short scaly hairs or scales which extend a very short way down on the sides of the face (at most only a little below the base of the antennae); face bearing a thin white tomentum which gives it a grey appearance, but with the upper margin of the mouth (the lower border of the clypeus) yellowish and with a very characteristic, sparse, longish, outstanding white pubescence which is scattered all over, except on a median triangular space, the clypeus: the argenteous scales on the sides of the face (except the upper border, as stated above) are quite wanting; the prominence in the shape of an obtuse conical protuberance of the face which, in profile, projects like a nose is rather conspicuous; genae bearing a thin white tomentum like the face but quite bare; ocellar tubercle small, prominent, deep black and with some stiff brown to black hairs; occiput velvety brownish-black above but with white tomentum elsewhere and with some argenteous scales about the middle, close to the hind margins of the eyes (often extending below all the way down to the jowls), as well as with long, dense greyish-white or very pale yellowish hairs at some distance from the hind margins of the eyes which are a little less dense, somewhat shorter and pure white below about the posterior margin of the mouth; proboscis black, about as long as the lengths of the head and thorax together; palpi short, black and with three or four very short, stiff reddish-brown hairs about the tip; antennae entirely black; first segment with brownish-grey to blackish stiff hairs dorsally and longer

whitish hairs on the sides and below; second segment with some shorter, preapical dark hairs; third segment more than twice as long as the first, not broader than the second at the base and very gradually tapering to a proportionally short point.

Thorax dull deep black but the lateral and anterior borders of the disc bear a white tomentum which extends on the anterior third as a median grey longitudinal stripe; this short pale stripe may be fairly broad and almost parallel-sided, narrow and triangular or extremely ill-defined or even quite absent; the pubescence is mixed, consisting of long, erect, soft whitish pubescence which is more dense in front and on the sides of the anterior half, and much sparser behind, where the few hairs near the posterior border are pale yellow, and of very short, very sparse and scattered golden yellow scaly hairs; pleurae covered with a pure white tomentum like the sides of the scutum and bare, except the mesopleura which possesses numerous short argenteous scales and long tufted white pubescence; scutellum similar in colour to the dorsum of the thorax and with a similar mixed but sparser pubescence, and the long hairs are yellow or pale brownish and some are decidedly strong and bristly.

Wings hyaline, with a well marked blackish-brown venation; the basal portion of R_4 stands at right angles with R_5 and occasionally emits a petiole which may reach the vein $R_2 + 3$ (Pl. XIII, figs. 214, 219 and 220); r-m cross-vein placed well after the middle of 1st M_2 cell and occasionally an extra cross-vein may be emitted on the basal third or fourth of the same cell; 1st A cell closed at a short distance from the margin and consequently with a short petiole; squamae with a yellow margin and a short white fringe; halteres cream colour to yellowish with the basal half of the stalk generally obscure brownish.

Legs blackish-brown with the tibiae and metatarsi more or less light reddish-yellow, particularly of the middle and hind legs; coxae with argenteous scales and long white hairs, in front; femora and tibiae bearing dense, adpressed, short argenteous scales and the femora with some longish soft white hairs on the sides; the spicules and the minute stiff pubescence on the tibiae and tarsi are black; claws black but reddish-brown at the base; pulvilli cream-buff.

Abdomen of normal conical shape, entirely dull brownish-black and, like the thorax, with a mixed pubescence consisting of long, erect, soft whitish or light greyish hairs which is dense and tufted on the sides about the base, and of very short adpressed golden yellow scaly hairs; venter covered with a thin white tomentum all over and with the short, adpressed scaly hairs much more dense than on the dorsum and argenteous; the long pubescence is sparse and whitish or dirty white; hypopygium (Pl. XIII, figs. 215 and 216) shining dark reddish-brown.

♀ : Not much like the male as the general pubescence of the body, which is shorter but more dense is usually of a uniform pale golden-yellow colour and the abdomen is somewhat plumper and less conical.

Head (Pl. XIII, figs. 217 and 218) very rounded when seen from in front; frons bearing a dense pure white tomentum and short, adpressed, argenteous scales which are very sparse above (often with a yellow tinge) and which gradually become more numerous below until they are very dense except on a small median rounded-oval blackish spot, a short distance above the base of the antennae; in addition to the scales, the frons bears some longish decumbent whitish hairs; face very much as in the male, with a similar tomentum and pubescence; ocellar tubercle and vertex with a very thin white tomentum and the longish upstanding hairs on the former are usually brownish; occiput with dense closely adpressed scales all around the posterior margins of the eyes which are pale golden yellow above and argenteous below and the upper third of the back of the head with very strong, coarse, brownish hairs, which are turned inwards at the tip and which are decidedly bristly; the pubescence on the dorsum of the basal segment of the antennae is whitish, only a few hairs near the apex may occasionally be grey.

Thorax with a much shorter pubescence than in the male but appearing yellow (like the abdomen) owing to the much more numerous (quite dense) short, adpressed, golden yellow scaly hairs on the dorsum; on the anterior and lateral borders the pubescence is paler and the scaly hairs are argenteous; in some well preserved specimens the median paler longitudinal stripe on the dorsum is very apparent and reaches down to the middle of the disc; near the posterior border the long hairs are very coarse more or less deep brownish and decidedly bristly like on the scutellum.

Abdomen rather less conical than in the male and much more yellowish owing to the short golden yellow scaly pubescence being more dense and thus concealing the black ground colour; also the general long erect pale yellowish or whitish pubescence, is shorter but coarser and rather more dense than in the male; ovipositor reddish-yellow with short, soft, erect reddish-yellow pubescence.

♀, ♂ Length of body : 3.5-6.7 mm., of proboscis : 2-3.5 mm.; breadth (with wings expanded) : 6-12 mm.

I have nine males of this species collected in South Sinai, Wadi Garagnia and Wadi El-Legaa (1700 metres altitude) and Farsh Gebel Moussa (2000 metres altitude) between the middle of June to the end of August (1936-42), and 17 females from the same locality, as well as two other females from Wadi Askhar (North Galala, 26.III.1928) and a single female from Wadi Garawi captured on March 15th, 1934. This last mentioned specimen and the two other females originating from the Galala are much smaller in size (one

of which I have adopted as co-type and from which the smallest measures were obtained) and the vestiture on the entire body is pure white with only a few of the very short scaly hairs on the dorsum of the thorax and abdomen pale golden yellow; also the tibiae and metatarsi are blackish except at the tip brownish-red.

Geron gibbosus OLIVIER

Olivier (1789), *Encyclop. Méthod.*, IV, 329 (*Bombylius*); Meigen (1820), *Syst. Besch.*, II, 223, 1, t. XVIII, fs. 18-19; Macquart (1834), *Suite à Buffon*, I, 392, 1, t. IX, pl. 22; Blanchard (1840), *Hist. Nat. Ins.* III, 586; Loew (1860), *Oefv. Vet. Acad. Verhandl.*, XVII, 86, 20, et (1860), *Dipterenf. Südaf.*, 196, I; Schiner (1862), *F. A.*, I, 68; Mik (1896), *Wien. ent. Zeitg.*, XV, 106, 43; Becker (1902), *Mittheil. Zool. Mus. Berlin*, II, 32, 43, et (1908), *id.*, IV, I, 21, 18; Bezzi (1924), *The Bombyl. Ethiop. Region*, 113, 114 (*G. hybridus* Meig.), et (1925), *Bull. Soc. Roy. Ent. Egypte*, 1924, 195-197, 3; Paramonow (1929), *Mem. Acad. Sciences Ukraine*, XI, 2, 185; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 132, f. 64-66; Austen (1937), *Bombyl. of Palestine*, 75, 15, 57.

SYNONYMY :

capensis Walk. (1852), *Ins. Saunders.*, III, 195.

hybridus Meig. (1804), *Klass.*, I, 186, 17 (*Bombylius*).

Olivieri Macq. (1840), *Dipt. exot.*, II, 1, 117, 1.

var. *erythropus* Bez. (1925), *Bull. Soc. Roy. Ent. Egypte*, 1924, 197, 5; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, 2, 185; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 133.

var. *halteralis* Wied. apud. Meig. (1820), *Syst. Besch.* II, 224, 2; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, 2, 185; Engel in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 133.

DIAGNOSIS :

A very small to rather large, variable species but readily distinguished by the pubescence on the sides of the face only, which may consist of elongate hairs and scales, scaly hairs only, or of quite short scales and hairs, and by the white pubescence all over the basal segment of the antennae.

DESCRIPTION :

♂ : *Head* (Pl. XIII, figs. 221-223) black; frons usually almost entirely bare, at most with a few argenteous or scaly hairs on the lower outer corners

on the sides of, and immediately above the base of the antennae but only rarely (var. *halteralis* Meig.) it may be almost entirely covered with short adpressed argenteous scales; face bearing a thin white tomentum and either entirely black or with the upper margin of the mouth (the lower border of the clypeus) more or less extensively yellowish (sometimes forming a large yellow triangle whose very long and narrow apex reaches almost to the base of the antennae); the argenteous pubescence on the face, although rather characteristic in position, being found always, at most on both sides of the outer fourth, varies remarkably, both in the length and in the nature of the hairs and never extends on the narrow genae (jowls), i.e. below the level of the upper mouth margin; it may consist of numerous longish decumbent hairs mixed with elongate scales or scaly hairs, or it may be formed entirely of dense, short, closely adpressed scales; genae from pale yellowish to reddish-yellow and quite bare; ocellar tubercle dull blackish, with some pale yellowish or dark brown erect hairs; occiput dull black above but with white tomentum elsewhere and usually with argenteous scales all about the middle, close to the hind eye margins, which often extend below on the jowls as well as with long, dense erect whitish or yellowish hairs, at a little distance from the hind margins of the eyes; this pubescence is a little shorter and pure white below, as usual; proboscis black and as long as, or a little shorter than the lengths of the head and thorax together; palpi black, with a few very short dark stiff hairs about the apex; antennae black with the extreme apex of the first and second segments obscurely yellowish or brownish; first segment with pure white hairs all over and, only occasionally, the shorter pubescence on the dorsal surface may be pale yellowish; second segment with shorter whitish or greyish preapical hairs; third segment almost twice as long as the first, not broader than the second at the base and very gradually tapering to the apex.

Thorax dull black, with the lateral borders of the disc bearing a fairly dense white tomentum which gives it a greyish appearance and with a mixed pubescence consisting of long, erect, dense and rather tufted hairs and of sparse, very short adpressed hairs; this mixed pubescence varies considerably in colour from all pure white to dark yellow or even yellowish-brown and the long erect hairs in reality may be termed tufted (almost furry) on the anterior border and on the sides of the upper half of the disc; pleurae covered with white tomentum like the sides of the mesonotum and with long, tufted, soft white hairs on the mesopleura which, in addition, possess the usual short, closely adpressed white scales or scaly hairs; the hypopleura also possesses similar but much fewer white scaly hairs; scutellum dull black with a similar pubescence as that of the thorax and with the longer hairs about the margins upturned, as usual.

Wings (Pl. XIII, fig. 224) hyaline with a well marked brownish-black, to less well marked, yellow (sometimes rather pale), normal venation; r-m cross-vein placed well after the middle of 1st M_2 cell; 1st A cell closed at some distance from the margin and with a longish petiole; squamae with a more or less pale yellow margin and a dense but short white fringe; halteres with the knob varying from pale yellowish-white to reddish-yellow with the stem usually obscured about the basal half.

Legs varying also considerably from entirely black with the base of the tibiae and of the metatarsi reddish-brown, to almost all yellow or reddish-yellow with the front legs more or less extensively dark reddish-brown and all the tarsi blackish; coxae blackish with short, adpressed white scales but which occasionally may be yellowish on the apical half (or less) of the dorsal surface of the middle and hind femora and the latter with some sparse soft, erect whitish hairs on the sides; spicules on tibiae black; claws all black but often reddish-yellow about the base; pulvilli pale yellowish-buff.

Abdomen conical, dull black, bearing a mixed pubescence consisting of long, tufted (sometimes decidedly furry), erect hairs and of sparser, very short adpressed scaly hairs which varies also considerably in colour, like that of the thorax, from all pure white to entirely yellow; usually the colour of the long pubescence corresponds to that of the short scaly hairs but occasionally the former may be pure white and the latter distinctly yellowish; venter grey (owing to being covered with white tomentum), bearing rather dense, short adpressed argenteous scales and very sparse, long, soft, pendent white hairs but sometimes the scales on the sides of the sternites are pale yellowish; hypopygium (Pl. XIII, figs. 225 and 226) blackish, with very short erect pale pubescence.

♀ : Not unlike the male but the abdomen is less conical and the general pubescence on the body is shorter and consequently never furry.

Head (Pl. XIII, figs. 227 and 228) very rounded when seen from in front; frons bearing a pure white tomentum and short, adpressed, usually scattered argenteous scales which may occasionally be quite dense and sometimes mostly yellow; in addition to the scales the frons possesses some longish, decumbent white hairs which may also be yellow (in the specimens with the yellow scales) and three or four hairs in front of the vertex may be black.

Thorax often with the white tomentum on the anterior margin of the disc extending down to the middle, as a median grey longitudinal stripe.

Abdomen, like the thorax, with the erect pubescence shorter but distinctly coarser than in the male; ovipositor blackish-brown with short erect pale pubescence.

♂, ♀ : Length of body : 2.9-8.8 mm., of proboscis : 1.4-4.0 mm.; breadth (with wings expanded) : 4 to 14 mm.

As may be judged by the above given measures *G. gibbosus* is very variable and all previous authors recognize two distinct varieties, in addition to *gibbosus* Oliv. *s.str.* These varieties are : *erythropus* Bez., distinguished by the yellow femora and the yellow pubescence of the body and *halteralis* Meig. which possesses black femora and white pubescence on the body. After the examination of the very rich material at my disposal, originating from almost every part of Egypt (about 120 specimens of each sex) I am inclined to consider these two varieties as superficial, since a great number of specimens exhibit intermediary forms between these so-called varieties.

This species is one of our commonest Bombyliids and I have captured it in almost every part of Egypt. Curiously enough the largest forms with yellow pubescence and paler legs are by no means restricted to a certain locality, having collected them from Cairo and in the Delta as far as the Mediterranean Coast, and the smallest dark legged and white haired forms also, are distributed over different and distinct areas such as the Mariout district, the Eastern Desert and Sinai. My records extend from January to end of October.

G. gibbosus has a very wide geographical distribution, being known from all the countries of the Mediterranean Sea and from all over Africa (see page 135).

Geron intonsus BEZ.

Bezzi (1925), *Bull. Soc. Roy. Ent. Egypte*, 1924, 195, 196, 2; Paramonow (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 185, 186; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25 Bombyl., 132, 133, f. 67; Austen (1937), *Bombyl. of Palestine*, 76, 85.

SYNONYMY :

krymensis Param. (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 185, 187.

DIAGNOSIS :

A medium-sized species easily distinguished by the long tufted, somewhat drooping white pubescence on each side of the outer third of the face (leaving the middle third bare) but giving the appearance at first sight, of the entire face being covered with hairs, by the pure white pubescence on the entire body and by the milky white wings which possess a dark brown, normal venation.

DESCRIPTION :

♂ ; *Head* (Pl. XIII, figs. 229 and 230) entirely black but covered with a rather dense pure white tomentum everywhere except about the upper region (ocellar tubercle and upper part of occiput) where the tomentum is much sparser and where consequently the black ground colour is hardly obscured; the eyes meet for a comparatively short space, for a distance about as long as the ocellar tubercle and consequently the frons is unusually large; frons almost bare, only with a few short adpressed argenteous scales, on the lower outer corners, on the sides and immediately above the base of the antennae and with a few similar scales on the sides near the margins of the eyes; face with long tufted (but not by any means as long and as tufted as in *longibarbus nov. spec.*) drooping pure white pubescence on each side of the outer third, but leaving about the middle third (the clypeus and the area above, to the base of the antennae) quite bare; ocellar tubercle large, prominent, with some whitish stiff hairs; the pubescence on the occiput is long, dense, tufted and whitish, but pure white below, on the chin and on the lower part of the genae (jowls); proboscis black and somewhat shorter than the length of the head and thorax together; palpi blackish, with a few very short stiff brownish hairs about the tip; antennae black, but the two first segments bear a rather dense fine pure white tomentum like most of the head; basal segment with longish sub-erect white hairs all over; second segment with some similar but much shorter preapical hairs; third segment about one and a half times the length of the first, not broader than the second at the base and gradually tapering into a rather elongate point.

Thorax dull deep velvety brownish-black but the lateral and anterior borders of the disc bear a white tomentum which, on the latter extends down on the upper half in a very narrow median grey longitudinal stripe and which is broader above, as usual; the mixed pubescence, consisting of long, erect hairs (very tufted and furry on the anterior margin and sides of the upper half), and of short adpressed scaly hairs, is all pure white; pleurae covered with pure white tomentum like the sides of the disc, with long, tufted white hairs on the upper half of the mesopleura and some short argenteous scaly hairs on the lower half of the same sclerite; scutellum dull brownish-black with a very thin white tomentum all around the margin and with a similar to but sparser mixed white pubescence as that of the thorax.

Wings milky white with a well marked, dark brown, normal venation and the veins about the base, are yellow, as usual; r-m cross-vein placed after the middle of 1st M_2 cell; 1st A cell closed at a comparatively short

distance from the margin and consequently with a short petiole; squamae with a yellow margin and a longish white fringe; halteres pale yellowish-white and with the stalk brownish at the base.

Legs almost entirely black but the base of the tibiae, the extreme apex of the femora (the knees) and the base of the metatarsi are distinctly reddish-yellow; coxae with argenteous short scales and long pendent white hairs, in front; femora and tibiae with dense argenteous scales and the femora with longish, scattered white hairs beneath; spicules on tibiae black; claws black but reddish-yellow about the base; pulvilli pale reddish-yellow.

Abdomen of normal conical shape, dull velvety brownish-black but the lower border of the segments are covered with a rather dense, fine, pure white tomentum which forms rather conspicuous ashy grey transverse bands; the pubescence is very much like that of the thorax, all white but the short argenteous scaly hairs are more numerous and the very long, upstanding hairs are dense and furry on the sides; venter ashy grey, owing to being uniformly covered with a dense white tomentum and clothed with dense, short argenteous scaly hairs as well as with long tufted, furry pure white soft hairs; hypopygium concealed, apparently reddish-brown with short erect whitish hairs.

♀ : Rather like the male but the general pubescence on the body which is shorter everywhere is never furry (anywhere), the longer outstanding hairs are of a less pure white colour and the short adpressed scaly hairs, particularly on the thorax have a distinct yellowish tinge.

Head (Pl. XIV, figs. 231-232) very broad owing to the frons being as broad as one eye; frons with very sparse, scattered, adpressed, short argenteous scales, which are more numerous (quite dense) below, and with some long suberect dirty white hairs on each side, above, and which are of same colour as those of the rather strong tuft on the ocellar tubercle; face with shorter (not at all tufted), decumbent white hairs than in the male, owing to which the bare middle portion is very apparent. Ovipositor concealed, apparently reddish-brown and with short erect whitish pubescence.

♂, ♀ Length of body : 5.5-7.5 mm., of proboscis : 2.3-2.6 mm.; breadth (with wings expanded) : 10-12 mm.

The only two specimens known so far of this species, are the two types in my collection, described by Bezz i, and which were captured by me in Mariout on April 4th, 1921 (the male), and on April 27th, 1923 (the female).

I am not aware of any other record of *G. intonsus* from Egypt but if the synonymy with *krymensis* Param. is correct, it occurs at Karadag and Feodosia (Krym) where Mr. Paramonov has collected several specimens of both sexes between April 4th and June 18th 1923-1926.

Geron longibarbus NOV. SPEC.**DIAGNOSIS :**

A medium-sized to rather large species, at once distinguished from all other known species by the very long, dense and furry pubescence on the face and on the entire body and by the characteristic abnormal wing venation including the open 1st A cell.

DESCRIPTION :

♂ : *Head* (Pl. XIV, figs. 233 and 234) entirely black but bearing a thin, fine tomentum which is brownish on the upper region (frons, vertex and upper third of occiput) but whitish and rather more dense on the face and the rest of the back of the head; the eyes meet for a space which is only a little longer than the ocellar tubercle and consequently the frons, which is quite bare is rather long; face with very long decumbent argenteous hairs on the sides, but so dense and furry (decidedly more so than in *intonsus* Bez.) that they cover the entire face (which is quite bare elsewhere, all over the centre) and make it appear entirely hairy; these silvery white hairs extend down over the entire length of the genae in almost equal length and density, and mingle with the equally long, tufted and furry argenteous hairs of the chin; ocellar tubercle, not large but prominent, blackish-brown and with a rather dense tuft of longish, stiff black hairs; the pubescence on the occiput is correspondingly long, erect, very dense and furry, almost pure white, but on the dorsal side the hairs gradually assume a brownish colour towards the base, similar to the brown tomentum of that region of the back of the head; proboscis black, comparatively short, being much shorter than the length of the head and thorax together; palpi elongate, more or less dark reddish-brown to blackish and bearing long erect reddish-yellow hairs about the apex; antennae black, and clothed with a very thin white tomentum which hardly gives them a greyish appearance; first segment with stiff blackish hairs above and with much longer tufted white hairs beneath; second segment with some sparse, very short, stiff black hairs scattered on the dorsal surface; third segment about one and a half times the length of the first, not broader than the second at the base, and hardly narrower at the apex where it ends usually in a truncate point.

Thorax dull deep velvety black with the lateral borders of the disc bearing a thin white tomentum but which is hidden by the very long and very tufted furry yellowish-white pubescence all over; the vestiture of the thorax, like that of the head and abdomen, is not mixed, the short adpressed scaly hairs being totally wanting; pleurae densely covered with pure white tomentum and bare except for the usual pubescence on the mesopleura which

is very long, tufted, furry and pure white; scutellum dull black with a similar pubescence (very long but upturned yellowish-white or dirty white) to that of the thorax.

Wings (Pl. XIV, figs. 235 and 236) hyaline with a well marked blackish-brown abnormal venation, but with the veins yellow about the base, as usual; the costa, which is less strong and thick a little after the tip of R_4 , distinctly follows the lower margin beyond the apex of the 1st A cell, to the axillary lobe; the fork R_4 , R_5 is very short; r-m cross-vein placed towards the apical third of 1st M_2 cell and the latter emits three veins, M_1 , M_2 and M_3 to the margin; 1st A cell always open at the lower margin; squamae with a yellow margin and a very long, tufted, shaggy whitish fringe; knob of halteres cream colour to pale yellow with the stem obscure brown towards the base and gradually paler apically.

Legs with the femora blackish except at the extreme tip reddish-brown, the tibiae reddish-yellow except on the extreme tip and on the basal third or less, blackish, and the tarsi blackish but the metatarsi, particularly the middle pair, pale (yellowish-red) about the apical third; the extent of the reddish-yellow colour on the tibiae and basal segments of the tarsi is rather variable as it may be very reduced or extensive and covering almost the entire surface of the tibiae except the apex and the metatarsi, as well as the basal half of the second tarsus segment; coxae black with very long tufted shaggy, pure white hairs beneath; femora and tibiae clothed with dense, very closely adpressed narrow and short white scaly hairs but which are rather less dense and not as pure white on the tibiae as on the femora and the latter with some long soft white hairs on the ventral surface and sides; middle femora with two short black anteroventral bristles on the apical third but at some distance from the tip; hind femora with a row of three strong (and much longer than those on the middle femora) black anteroventral bristles on the apical third and a row of about four much shorter bristles, posteroventrally, also on the apical third; tibiae with rows of strong black bristles but the apical spurs of the middle legs are yellow and black at the tip; claws reddish-yellow but black only towards the apex; pulvilli pale reddish-yellow.

Abdomen elongate-conical, dull deep velvety black and clothed with very long upstanding furry whitish pubescence; venter uniformly covered with white tomentum and clothed with long tufted and furry pure white pubescence; hypopygium (Pl. XIV, figs. 237 and 238) large, not at all concealed and dark reddish-brown with short erect reddish-yellow hairs about the apex; dorsal lamellae fused completely together, broad-conical to quadrate, with a triangular apex ending by a sub-globose median process, deeply concave and repandous, forming a shield; ventral lamellae elongate-conical, feebly recurvate, fused, except at the apex where they end in two stout

and strong hooks which are sharply bent upwards and forked apically; these hooks possess each a dense tuft of short but strong stiff black bristles or spines (like a brush) on the postero-lateral surface, but the forked apex is bare and shining.

♀ : Somewhat like the male but the abdomen is much less conical and the pubescence which is distinctly shorter and coarser as usual, is from pale to deep yellow on the dorsum of the entire body; in addition, the pubescence is mixed on the thorax and abdomen, the short adpressed scaly hairs being very numerous, almost dense.

Head (Pl. XIV, figs. 239 and 240) very broad with a conspicuously puffed out occiput; frons, near the vertex almost as broad as one eye, brownish-grey tomentated and clothed with fairly numerous long, rather coarse, sub-erect pale golden yellow hairs, but always leaving a more or less narrow middle portion quite bare and the coarsest hairs in the upper region are usually brown; face very much as in the male with the very long tufted white (beard-like) pubescence on the sides almost as long; the pubescence on the dorsal surface of the first antennal segment, the tuft of hairs on the ocellar tubercle and the very long, coarse pubescence on the upper region of the occiput are usually yellowish-brown.

Legs usually paler than in the male.

Ovipositor (Pl. XIV, fig. 241) shining black but reddish-brown about the apex which is clothed with very short, erect, yellowish hairs and with a row of three reddish-brown spines on each side, ventrally.

♂, ♀ Length of body : 4.5-9.0 mm., of proboscis : 1.7-2.2 mm.; breadth (with wings expanded) : 7.8-13.5 mm.

Seventeen males and the same number of females of this very interesting and characteristic species have been collected by myself and Mohamed Tewfik Effendi in Wadi Edeib and Wadi Kanssissrob (Gebel Elba) between the middle of January to the end of February in 1933 and 1938. *G. longibarbus* has not been found in any other locality in Egypt, so far.

The unusual characters exhibited by this species in the head (the pubescence of the face, the shape of the third segment of the antennae and the remarkably puffed out occiput in the female), in the wing venation, in the shape and structure of the male genitalia, as well as, in the spiny ovipositor, may well be worthy of generic rank. However, I consider that far too little is known as yet on this aberrant group of genera to which belongs the genus *Geron*, and, until many of the most remote parts of the country have been more systematically visited for collecting purposes and until more light is thrown on the obscure bionomics of the group, the erection of new generic names only adds more to the difficulties which are already met by the systematist.

Geron longiventris NOV. SPEC.DIAGNOSIS : *Geron longiventris* nov. spec.

A medium-sized comparatively short haired species readily distinguished by the unusually narrow and elongate abdomen, the normal wing venation in which the r-m cross-vein is placed on the middle of 1st M_2 cell and in the male by the very dense short argenteous scales which completely cover the frons and by the very characteristic shape of the male genitalia.

DESCRIPTION :

♂ : *Head* (Pl. XIV, figs. 242-244) as high as broad and the eyes meeting for a long distance which is longer than twice the length of the frons, the latter being entirely covered by dense, short argenteous scales; face blackish above and more or less extensively yellowish on and about the clypeus but the ground colour is rather obscured by a fine white tomentum; the pubescence on the face, which occurs only on each outer third is mixed, and consists of rather numerous short sub-erect argenteous scales which are somewhat concentrated close to the eye margins and of sparse, scattered, sub-erect longish white or yellowish-white stiff hairs; the narrow genae are yellowish-white and entirely bare; ocellar tubercle very small but prominent, brownish-black and bearing some erect longish brown hairs, two or three of which are often black; occiput brownish-black above, on the entire upper third, but all the lower two-thirds ashy grey owing to the presence of white tomentum and with a long erect somewhat tufted and coarse pubescence (shorter, less tufted and rather coarser than in all the other species) which is brown on the upper third, yellowish about the centre and pure white (and much softer) on the lower third and on the chin; there are also some short, adpressed scales close to the hind margin of the eyes but only on the lower two-thirds of the occiput and the scales on the middle region are usually pale golden yellow while those on the lower region are argenteous; proboscis black and comparatively short, being much shorter than the length of the head and thorax together; palpi long, blackish and with some erect microscopic brownish hairs about the apex; antennae black and the two basal segments covered with a thin sparse whitish tomentum which gives them a greyish-black appearance; first segment with stiff black to brown hairs above and with longer yellowish to white hairs beneath; second segment with much fewer (very sparse) and very short stiff black or brownish hairs; third segment about one and a half times the length of the first, somewhat broader than the second at the base, and with the basal half elongate-conical and the apical half thin and styliform.

Thorax dull brownish-black but the lateral and anterior borders of the

disc bear a whitish tomentum, which on the latter extends down on the upper third forming a rather broad, ill-defined median greyish longitudinal stripe; the pubescence is mixed, and the longer erect hairs are much shorter and less tufted but coarser than in the other species, being quite short and blackish about the centre and becoming gradually paler, longer and more numerous towards the outside until they are yellowish or whitish on the margins, while the very short adpressed scaly hairs are fairly dense and uniformly golden yellow all over; the coarseness of the pubescence is manifested by the presence of several almost true long bristles above the base of the wings and all about the posterior margin of the disc; pleurae bearing a dense white tomentum and all bare except the mesopleura which is clothed with long tufted white or yellowish hairs above and with numerous adpressed argenteous or pale shining yellow scales on the lower half; the hypopleura also bear a tuft of similar scales among which there are a few short soft whitish hairs; scutellum dull brownish-black and with a similar mixed pubescence as that of the thorax but the longish erect bristly brownish-yellow hairs are upturned, as usual.

Wings hyaline with a well marked brownish-yellow to blackish-brown normal venation and the veins are yellow about the base as usual; R_4 vein has a marked tendency for emitting a petiole in R_3 cell; r-m cross-vein placed on the middle of 1st M_2 cell and the vein forming the outer margin of the latter is unusually undulated or somewhat S-shaped; 1st A cell closed at a short distance from the lower wing margin and consequently with a short petiole; squamae with a yellow margin and a slight, short white fringe; halteres with the knob cream colour to pale yellow and the stem obscure brownish at the base and paler towards the tip.

Legs with the coxae and femora blackish, the tibiae yellow but reddish-brown about the apex and the tarsi blackish except the basal third of the middle metatarsus yellow; as a rule the yellow colour is more extensive on the front and middle legs when the apex of the femora may be reddish-yellow while in the same individual all the hind legs may be black and only the basal half of the tibia obscure reddish-brown; coxae with some short adpressed argenteous hairs and with some long drooping grey hairs on the anteroventral side; femora and tibiae bearing short, very closely adpressed white scales and the former with some not long, soft, drooping whitish hairs beneath; claws obscure reddish-brown but black apically; pulvilli very pale brownish-yellow.

Abdomen unusually narrow, elongate and feebly conical, being only a little broader at the base than at the apex and of a uniform dull brownish-black colour; the mixed pubescence corresponds to that of the thorax, the longer erect hairs are brownish-yellow not dense, shorter and rather coarser

than in all the other species and the very short adpressed scaly hairs are more dense than on the thorax and are of a uniform golden yellow colour; venter clothed with dense white tomentum which may be yellowish towards the sides and with very adpressed argenteous scaly hairs which may also possess a distinct yellow tinge, particularly on the sides of the sternites; the longer pubescence is sparse but quite long, very soft and shaggy; hypopygium (Pl. XIV, figs. 245 and 246) dark reddish-brown, narrow but very prominent and well exposed with the lamellae well separated on their entire length; dorsal lamellae very elongate-oval, concave below and bearing very short erect yellowish hairs on the dorsal surface; ventral lamellae about as long as the upper, broad at the base and rapidly tapering to a sharp, feebly upturned point.

♀: Similar to the male but the pubescence, which is darker on the thorax and abdomen is shorter, as usual and the narrow elongate abdomen is almost cylindrical.

Head (Pl. XIV, figs. 247 and 248) not very broad, almost rounded, owing to the frons being narrow near the vertex, and about as broad as one third the width of one eye; frons bearing a thin tomentum which is white on the broader lower half and pale yellowish on the upper half; the short scaly pubescence is scattered and yellow on the upper half but denser, more adpressed and argenteous below, particularly above and beside the base of the antennae and some long decumbent coarse brownish-yellow hairs are scattered about the upper half, but always leaving as usual a narrow median space bare; face as in the male but the sub-erect white hairs are shorter; third segment of antennae apparently gradually tapering into a rather elongate tip.

Legs with the yellow or reddish-yellow colour more or less extensive, particularly on the femora (the apical third or half).

Ovipositor without spines, reddish-yellow and bearing very short erect brownish pubescence.

♂, ♀ Length of body : 6.0-8.0 mm., of proboscis : 1.5-2.3 mm.; breadth (with wings expanded) : 9.0-10.3 mm.

Six males and three females, including the types, are known so far of this species. One male originates from Sollum (end of April, 1933), one other male from Wadi Rishrash (end of March, 1935), 2 males from Wadi Anbaga, collected by Dr. Priesner in the beginning of May, 1933, one male from Abu Souer (12.VI.1925) and one male from Geneifa (13.VI.1925). The females originate from Dakhla Oasis (March 17th, 1934, 2 specimens) and Mersa Mobarak (end of April, 1933).

SINAI

(Becker 1916, *Ann. Mus. Nat. Hung.*, XIV, 65 [Sep.])

TYPE OF THE GENUS :

Kneuckeri Beck.

Closely allied to *Amictus* Wied., but distinguished by the face which is much less protruding « beak-like », by the proboscis which is about as long as the head and by the general chaetotaxy consisting of decidedly stronger and longer bristles.

Head a little broader than the thorax; face feebly produced forward « beak-like »; proboscis as long as the length of the head; antennae as in *Amictus*, and the third segment bearing a minute cylindrical joint ending by a microscopic sensory rod.

Wings of the same shape and with the same venation as in *Amictus* and in the type of the genus, *Kneuckeri* Beck., which is the only species known so far, cell R_5 is widely open and the r-m cross-vein is placed well after the middle of 1st M_2 cell; 1st A. cell open; alula obsolete.

Thorax with weak but distinct rows of d.c. bristles; pre-alar, supra-alar and post-alar bristles well developed; scutellum with marginal bristles. Posterior femora with ventral rows of bristles and the tibiae with much fewer and shorter bristles except on the posterior tibiae where the short bristles are fairly numerous.

Abdomen with distinct marginal bristles particularly on the sides and towards the apex.

Chaetotaxy of head, thorax, legs and abdomen consisting of quite as numerous and as strong bristles as in *Amictus*.⁽¹⁴⁾

The genus *Sinai* was known to Hermann (1909, in Kneucker, *Zool. Ergeb. botan. Studienr. durch d. Sinai-halbinsel*, Karlsruhe) but Becker (1916, *loc. cit.*) gave its first description. It is unfortunate that Becker's type (a unique ♀) in the collection of the Zool. Staatssammlung in München is in a very bad state of conservation, a fact which no doubt renders Engel's additions towards the designation of the Genus incomplete. The series which I have before me (5 ♂♂ and 8 ♀♀) in almost perfect condition have enabled me to supplement and complete the description of the genus and of its type species, *Kneuckeri*. There should be no difficulty in identifying this fly especially by the very characteristic shape

⁽¹⁴⁾ Fortunately I am able to supplement correctly the rather important character relating to the chaetotaxy of this genus as its designation according to Engel (1937) owing to the extremely deficient condition of the unique specimen (♀) which was then available, is very misleading.

and design of the head of the female when viewed from above (Pl. XV, fig. 252).

This genus contains only one species so far, the type of the genus.

Sinaia Kneuckeri BECK.

Becker (1916), *Ann. Mus. Nat. Hung.*, XIV, 66; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 14-15, figs. 9-11.

DIAGNOSIS :

A medium sized dull greyish-black species, easily distinguished by the shape of the frons, the feebly produced face and by the proboscis which is not longer than the head.

DESCRIPTION :

♂ Novum.

Head (Pl. XV, figs. 249-251). Face, frons vertex and occiput covered with a fairly dense shining silvery white pulverulence which does not however entirely conceal the black background; ocellar tubercle rather prominent, black with very sparse white pulverulence which gives it a greyish-black appearance and with a well furnished tuft of erect black bristly hairs or weak bristles; distance between the two eyes rather less than the length of the first antennal segment; frons with a median shallow « gutter-like » depression extending from the anterior angle of the ocellar tubercle to the base of the antennae; on the lower half of the frons this median depression is more apparent owing to the sides (of the frons, on this lower half) being feebly puffed out; the erect bristly hairs on the feebly puffed out sides of the lower half of the frons are fairly dense and all pale yellowish-white; the pale pubescence on the feebly produced face is rather erect, bristly and very similar to that of the lower half of the frons; occiput with fairly dense but short erect pale greyish-yellow hairs; antennae (Pl. XV, fig. 252) black with a very scanty and sparse white pulverulence and almost devoid of pubescence except for a few (4 to 6) scattered, short erect blackish hairs on the basal segment and a few very short ones on the upper side of the second segment. First segment of antennae about three times the length of the somewhat sub-globose second segment; third segment a little longer than the first, somewhat spindle-shaped, being broader in the middle than at the base and gradually tapering to the apex where it ends in a minute two-segmented style bearing a terminal pale yellow sensory rod. Proboscis blackish; palpi two segmented, narrow and obscure dark reddish-brown.

Thorax black with pale dirty yellowish-grey pulverulence extending fairly

densely on the anterior margin (covering quite, the anterior fifth of the dorsum), on the sides, and on the three usual longitudinal stripes on the middle third of the disc; the two dark stripes (on either side of the median light stripe) extend from the anterior margin of the disc (being the only dark areas of the anterior fifth of the dorsum) and very gradually broaden downwards until they fade away with the entire lower third or fourth of the disc. The pubescence is fairly erect, somewhat shaggy, denser and all pale yellowish on the margins but black about the centre of the disc; all the bristles are pale brownish-yellow except the three or four prealar black and occasionally one or more post-alar may also be black; pleurae with a rather dense pale pulverulence and bare, except for a small tuft of erect whitish hairs in the position of the propleural bristles just above the base of the front coxae. Scutellum black with very short adpressed and shabby whitish pubescence on the disc and with many pale brownish-yellow bristles most of which are irregularly placed on the margin but a few may be black and placed on the disc.

Wings hyaline but if placed on white background they will be found to be feebly but distinctly tinged pale brown; veins dark brown; R_5 and 1st A cells wide open. Halteres yellowish-brown with the knobs pale yellow.

Legs appearing all black but when examined in strong light, the extreme apices of the femora and all the extreme bases and apices of the tibiae and tarsal joints will be found to be reddish-brown. The pubescence is irregular, and consists of rather sparse, very short adpressed whitish hairs on the femora and on the middle and hind tibiae; all the bristles are black, the strongest being on the ventral side of the posterior femora in one or two rows; the short bristles are: one row of 3 to 4 on the outer dorsal side of the anterior half of the front and middle tibiae, two or three rows of rather stronger bristles on the dorsal and outer sides of the posterior tibiae and one to two on the antero-ventral sides of the front and middle femora at a small distance from the tip. Coxae with a similar pulverulence as on the pleurae with an antero-ventral row of longish whitish hairs ending before the tip; trochanters blackish, bare, except the posterior pair with some short pale hairs; claws reddish-brown and black at the apex.

Abdomen black, but with a dirty and untied greyish general appearance owing to its being covered with a thin white pulverulence in addition to the coarse nature and the irregular disposition of its whitish pubescence; first segment with long tufted erect whitish hairs on the outer thirds of the upper half forming a frill, and the lower half with short very adpressed almost scaly whitish pubescence; second to fifth segments with some scattered meagre patches of very short adpressed whitish scaly hairs rather more apparent towards the anterior margins and sides of the segments;

sixth and seventh segments with very sparse short whitish hairs; the bristly hairs (some of which may be termed weak bristles) on the lower margins and sides of the segments are longish and mostly pale yellowish but those towards the centre and many of the marginal bristly hairs of the third to seventh segments are usually black; second to fifth segments with a few very short black hairs about the middle third of the dorsum. Venter black with the posterior margins of the basal sternites (being not more than the middle third of the venter, owing to the tergites folding over and covering the lateral thirds) pale brownish-grey; the pubescence on the sternites is whitish, and consists of scattered, very short adpressed hairs and some longish upstanding hairs near and about the posterior margins of the sternites. Genitalia (Pl. XV, figs. 253-255) not broad, elongate, shining reddish-brown and well apparent owing to their dorsal portion (upper forceps) being almost bare; upper forceps sub-conical and ending each, apically by a short hook-shaped segment which bears dorsally minute erect black hairs and whose sharp tips may be directed downwards or forward; the very thin reddish-yellow penis is often seen between these two hooks and is curved in the same direction as the latter; ventral lamellae fused into one almost quadrate plate which is a little longer than broad with a convex ventral surface and which bears sub-erect hairs, those on the sides of the plate being usually whitish and short, those towards the centre very short and blackish and the hairs on the sides towards the apex are longish and mostly black.

♀ : Not unlike the male but apparently plumper and the abdomen broader; moreover, owing to the general pubescence being more dense and the bristles on the entire body and legs decidedly more numerous and stronger, the female has a definitely coarser appearance than the male.

Head (Pl. XV, fig. 256) with the broad characteristic frons bearing coarse erect black pubescence except for a few pale bristly hairs on the lower margin, above the base of the antennae and the distance between the two inner eye-margins at the vertex almost equal to the length of the antennae; the dense pale pulverulence on the frons is present only on the lower margin, on about the lower halves of the sides and on the lower half of the median « gutter-like » depression, leaving the two tubercle-like or puffed out sides of the median depression as well as the upper part of the frons and vertex shining black; the mixed black and whitish bristly pubescence on the face is mostly black.

Pubescence and bristles on *thorax* and *abdomen* denser and coarser than in the male. About five or seven pre-alar bristles two or three black, the others yellowish; about four or five black supra-alar, and four to six post-alar; mostly yellowish.

The black, stronger bristly hairs on the sides and posterior margins of the fourth to sixth segments are more numerous than the pale yellowish bristles. Seventh segment, apparently the base of, and belonging to, the ovipositor, conical, shining black, with short coarse but not dense, very adpressed whitish scaly pubescence and black bristly hairs about the tip and sides (the latter being much shorter than the apical hairs).

♂, ♀ Length: 8.5-9.2 mm.; breadth: 10-12 mm.

I have before me a series of 5 males (including the type) and 8 females all captured by my assistant Shafik Mostafa Effendi at Ein Gedeirat (Northern Sinai) between April 13th and 24th 1938. There is no other record of this species except Becker's type (*loc. cit.*), one female, labelled « Sinai-Gebirge, Kneucker » which is in the collection of the Zool. Staatssammlung, München.

AMICTUS

(Wiedeman 1817, *Zool. Magaz.*, I, 58, 1)

SYNONYMY :

Pseudoamictus Big. (1892, *Annal. Soc. Entom. France*, sér. 7, II, 342).

Thlipsogaster Coqu. (1894, *Trans. Amer. Entom. Soc. Philad.*, XXI, 108).

Thlipsomyza Wied. (1820, Nov. Dipt. gen., 12).

Thlipsogaster Rond. (1863, *Archiv. zool. Modena*, (sep.) III, 72).

Truquia Rond. (1863, *loc. cit.*, (sep.) III, 72).

TYPE OF THE GENUS :

variegatus Meig. (1835, in Waltl's Reise, Edit. I (*Thlipsomyza*) et Edit. 2 (1839), II, 112 (*Thlipsomyza*)).

Medium sized cinnamon-buff to tawny-olive flies, characterized by the face which is conspicuously produced forward somewhat « beak-like », the long horny proboscis which is always longer or much longer than the head and by the somewhat elongate legs.

Head rounded, a little broader than the thorax; eyes much more approximated in the male than in the female; face projecting forward into a more or less pointed beak-like prolongation which is at least as long as the basal segment of the antenna; proboscis well chitinated and always longer (more or less considerably) than the longitudinal diameter of the head; palpi consisting of one narrow, elongate segment which is often a little swollen before the apex⁽¹⁵⁾; antennae with the basal segment cylindrical and as long

⁽¹⁵⁾ Engel (1937) in his designation of the Genus states « palpi » consist of two segments, both of almost equal length. This no doubt is an error as in no specimen belonging to our five species have I been able to find trace of a second segment.

or almost as long as the conical third segment which ends by a short cylindrical style bearing a microscopic terminal sensory rod; second antennal segment subglobose.

Thorax with as numerous chaetotactic bristles as in the preceding genus but the bristles are decidedly weaker (hence appearing fewer); in all the hitherto known species from Egypt cinnamon yellow to buff or brown colour with white or grey forms the pattern on a black and yellowish back ground.

Wings hyaline; 1st A cell always open; cell R_5 may be more or less wide open, closed at the margin or closed at some distance from the margin and consequently stalked or petiolate; alar squamae with a bare margin; alula obsolete.

Legs somewhat elongate but robust, particularly the posterior pair; posterior femora usually with ventral rows of bristles in the male only; middle femora with pre-apical bristles; posterior tibiae usually with much stronger rows of bristles than the middle and front pairs; front tarsus of male often with one remarkably elongated bristle on the under side of the first segment, just before the tip; usually the female of the species possessing this bristle, with two similar bristles in the corresponding position.

Abdomen cylindrical, somewhat longer than the length of the head and thorax together with a truncate and slightly thickened end in the male but in the female terminating in a blunt point; the posterior margins of the segments bear in all species fairly long erect bristles; the hypopygium and the ovipositor are sometimes concealed by more or less dense bristles or bristly hairs.

The metamorphosis is unknown.

Not one species of this genus out of the five so far known from Egypt is rare, although at least three of them are local. The three species distributed in the Nile valley and Mariout district are « spring species » while the two others which may be termed alpine (as they occur at an altitude between 1600 and 2000 metres) are « summer species ».

25 species (including the two new species described here) belonging to this genus are recorded from the Palaearctic Region but I have no doubt that the actual status of many would be changed if ample material of both sexes was available for study as it would lead to a sensible reduction of their number.

TABLE OF SPECIES

- 1 (4) R_5 cell closed at some distance from the wing margin and consequently with a rather long petiole.
- 2 (3) Conspicuous pure shining white longitudinal lines on dorsum of thorax

- extending to the lower margin and even beyond, on the lateral margins of the scutellum; yellow ochre species (palest coloured) *aegyptiacus* **PARAM.**
- 3 (2) White longitudinal lines on thoracic dorsum reaching almost to the lower margin; ochraceous-orange and carob (dark coloured) species *Shafiki* **NOV. SPEC.**
- 4 (1) R_s cell open, or if closed, its closure is on the wing margin or at a very short distance from it and consequently with a very short petiole.
- 5 (6) R_s cell wide open; white longitudinal lines on dorsum of thorax reaching to, or hardly beyond, the middle of the disc; ochraceous-tawny species *pulchellus* **MACQ.**
- 6 (5) R_s cell usually closed at, or a very short distance from, the wing margin, rarely open, in which case it is much narrowed at apex; rather darker coloured species.
- 7 (8) Ochraceous-tawny species with the white longitudinal lines on thoracic dorsum almost as conspicuous as in *aegyptiacus* Param., reaching to, but not extending beyond, the lower margin; fringe of bristly hairs surrounding the ♂ genitalia laterally and ventrally heavy and dense *gebali* **NOV. SPEC.**
- 8 (7) Ochraceous-tawny to tawny-olive species with very inconspicuous lighter (brownish-grey) longitudinal lines on thorax; fringe of bristly hairs, surrounding ♂ genitalia laterally and ventrally slight and thin *setosus* **LW.**

Amictus aegyptiacus PARAM.

Paramonow (1931), *Mém. Acad. Sci. Ukraine*, Nr. 11, 7; Engel (1937), in Lindner, *Flieg. Pal. Region*, 25, Bombyl., 24.

DIAGNOSIS :

A medium sized yellow-ochre (one of the largest of our species) easily distinguished by the conspicuous pure shining white longitudinal lines on the thorax which extend to even beyond the lower margin on the sides of the scutellum, by the closed R_s cell (with a long petiole), by the presence of the elongated bristle on the underside of the first segment of the front tarsus, just before the tip and by two similar bristles in the female in the corresponding position.

DESCRIPTION :

♂ *Head* (Pl. XV, figs. 257-259) covered with a shining pure white tomentum which is not dense enough to conceal the ground colour particularly

on the ocellar tubercle, the ground colour of the face being wax yellow and of the frons, vertex and occiput obscure blackish-brown; ocellar tubercle with a thin tuft of pale brownish bristly hairs; frons with white bristly hairs which are less erect than those on the vertex and the face also bears similar white hairs but which are decidedly fewer and shorter; occiput with fairly tufted sub-erect whitish hairs; palpi straw-yellow with some scattered short blackish hairs; antennae blackish-brown to brownish-black dorsally but wax yellow on the sides and ventrally and almost bare; basal segment quite as long as the third, and often with the yellow colour extending dorsally on its two extremities; third lanceolate segment usually entirely blackish-brown on its narrow apical third; the pubescence on the antennae consists of a few very short blackish hairs scattered on the dorsal side, those near the base of the first segment being whitish.

Thorax dorsum with two pure silvery white admedian, longitudinal stripes, extending along the entire length, from the fore to the hind margins and formed of short but thick, adpressed scaly hairs; lateral margins of scutum also covered by similar silvery-white scaly hairs, so that the dorsum shows also three yellow ochre stripes approximately of equal width; the three latter stripes due to dense short closely adpressed (but not scaly) hairs of that colour; the bristles are maize yellow to pale brownish-yellow except the short very weak ones towards the centre of the disc blackish; scutellum with yellow-ochre, short, closely adpressed hairs on the disc, but the lateral margins clothed with silvery white scaly hairs, thus giving the appearance as if the two white admedian longitudinal stripes on the scutum extend below on the scutellum; back ground of scutellum black, with a very broad brownish-yellow margin; about four rather strong marginal bristles of the same colour as those of the scutum; pleurae very pale yellowish-white to pale yellowish-grey and bare except for some fairly dense pure white scaly hairs covering the middle third of the mesopleura and some fairly long upturned pale yellowish hairs on the upper third of the same sclerite.

Wings entirely hyaline with sepia to dark brownish-black veins which are somewhat paler at the base; R_5 cell closed at some distance from the wing margin and consequently with a rather long petiole (as in *A. Shafiki nov. spec.*), r-m cross-vein placed well after the middle (towards the distal third) of 1st M_2 cell; halteres warm buff, often somewhat darker ventrally.

Legs brownish yellow with the four apical segments of the front and middle tarsi, the hind tibiae and all the hind tarsal segments obscure blackish-brown and usually with a small inconspicuous blackish-brown spot on the apex of the femora dorsally, the one on the posterior femora being much more extensive; front metatarsus with one remarkably elongated blackish-brown bristle on the under side, just before the tip; front coxae with pure white

adpressed scaly hairs on the upper two thirds of their outer sides and with some white bristly hairs before the tip; middle coxae with sparser white scaly hairs and fewer white bristly hairs in the corresponding position; posterior coxae with denser white scaly hairs on the entire outer sides and with longish white bristly hairs or bristles arranged in one or two irregular longitudinal rows somewhat fan-wise; trochanters bare; femora with very sparse short pure white adpressed scaly hairs; front and middle tibiae with even sparser white scaly hairs on the basal half and with minute bristly blackish hairs on the apical half; hind tibiae possessing a minute bristly blackish pubescence all over; all the bristles on the legs are black except one or two of the strongest bristles around the apex of the middle tibiae sometimes brownish-yellow; claws black but reddish-brown about the base; pulvilli maize yellow.

Abdomen clothed for most part with fine, adpressed, curled (as if brushed outwardly and parted in the middle) yellow-ochre hairs, and with adpressed, flattened, pure white scaly hairs forming a large lateral triangular spot, one on either side of the upper outer halves of the second to the fifth segments; the above mentioned pubescence (the yellow ochre and white) does not conceal the black background of the segments and their yellowish-brown, somewhat shining posterior margins; first segment (which is as usual much broader and narrower than the consequent segments) has a broad, pale brownish-grey posterior margin and possesses on its entire surface adpressed, flattened, pure white scaly hairs rather similar to, but somewhat longer than, the white scaly hairs (forming the lateral triangles of the segments below), and a rather thick fringe of longish erect and forwardly directed white hairs on the entire anterior margin except in the centre (underneath the margin of the scutellum); sixth and seventh segments narrow but broader than the segments above them and with yellow ochre pubescence all over; all the bristles on the hind margins of the tergites are fairly strong and more or less pale brownish-yellow; venter cream to pale ochraceous-buff with irregular, obscure dark brown or blackish areas towards the centre; first sternite bare; second to fifth ventral segments with the actual sternites in the centre bearing a few scattered short adpressed white scaly hairs and with the much overlapping sides of the tergites bearing tufted but not dense longish erect white hairs; sixth and seventh sternites brownish-yellow with longish white hairs on the sides and rather strong brownish-yellow bristles on their posterior margins. Genitalia obscure blackish-brown on the basal half and yellow-brown on the apical half, the former bearing some short adpressed white scaly hairs and the latter half with longer and fine orange-rufous to greyish-yellow pubescence; lateral fringes of genitalia very well developed, tufted and consisting of longish white hairs around the base and above and of much longer some-

what bristly brownish to pale brownish-yellow hairs elsewhere; the longer bristly hairs when viewed from the venter are often much paler (almost white) about the tip.

♀ *Novum*.

Very similar to the male but the much broader frons (Pl. XV, fig. 260) owing to the distance between the eyes being about three times as great, bears a tuft of erect but not long bristly hairs on either side of the upper half; these bristles are brownish-rufous and two or three of the posterior ones (immediately below and on the sides of the ocellar tubercle) may be black; erect bristly hairs on ocellar tubercle usually black but one or more may be brown or all may be brownish-yellow as in the male. Legs with two elongate brownish-bristles on the underside of the front metatarsus just before the tip, and the black bristles on the underside of the posterior femora (forming an outer and an inner row) are, as usual in the female, much fewer, shorter and almost negligible. Abdomen with the lateral triangular white spots in the upper half of the second to fifth segments (formed by the short, adpressed scaly pubescence) decidedly less broad, particularly on the deflexed lateral extremities of the segments. Venter, including the sternites and the much overlapping sides of the tergites bearing all over short, very adpressed, white scaly pubescence and the tufts of longish erect white pubescence are here absent and replaced by a few short, white, sub-erect bristly hairs about the inner posterior margins of the tergites; second to sixth sternites with some pale bristles on the lower margin and these bristles become stronger and darker coloured towards the apex; sixth and seventh sternites with a similar pubescence as in the male, but the posterior margin of the seventh bears a fringe of longer brownish or blackish-brown hairs.

♂, ♀ Length (including exerted proboscis) : 8.6-14 mm.; breadth (with wings expanded) : 8.5-13.9 mm.

14 ♂♂ and 20 ♀♀ (including type) from the neighbourhood of Cairo, Elzabet-el-Nakhl, Marg, Abu-Soueir, Mansouriah, Abu Rawash, El-Katta, Suez Road (3rd and 8th Towers), and one ♀ from Geneifa, all captured during May and the first half of June (1921-27).

***Amictus gebeli* NOV. SPEC.**

DIAGNOSIS :

An ochraceous-tawny species distinguished by the white longitudinal lines on the thorax extending from the upper to the lower margins (never on the scutellum) and by the feebly but distinctly tinged brownish wings which possess cell R_5 closed at, or immediately before, the margin.

DESCRIPTION :

♂ *Head* (Pl. XV, fig. 261) covered with a shining pure white tomentum which does not conceal the ground colour, that of the face being Naples yellow and that of the frons, vertex and occiput obscure brownish-black (decidedly darker than in *aegyptiacus* Param.); ocellar tubercle blackish with the usual thin tuft of erect bristly hairs all pale reddish-yellow; all the sub-erect bristly hairs on the sides of the frons and on the face are white; occiput with fairly dense erect but short pale yellowish-grey hairs; palpi chamois to honey yellow and almost bare; antennae with the blackish colouration decidedly more extensive than in the preceding species, covering the entire dorsal and lateral surfaces of the basal segment and the entire third segment is blackish; the very short hairs on the dorsal side of the first segment are white and the few minute hairs towards the apex of the third segment brownish-black.

Thorax : dorsum with two white admedian longitudinal stripes extending along the entire length from the fore to the hind margins and composed of short adpressed scaly hairs as in *aegyptiacus* but not extending down below the scutum (on the sides of the scutellum); lateral margins of the scutum, from the fore margins to the wing base only, also covered by similar white scaly hairs, so that the dorsum shows also three ochraceous-tawny stripes which are not of equal breadth owing to the absence of white hairs on the outer lower halves of the lateral stripes; these latter (stripes) are due to fairly dense short closely adpressed ochraceous-tawny hairs which however are not dense enough to conceal the black back ground; the bristles are pale brownish-rufous except the very weak (bristly hairs) d.c. blackish; scutellum black with a broad yellowish-brown margin (not as broad as in *aegyptiacus*) and bearing a scanty short, curled, very adpressed ochraceous-tawny pubescence all over and without any traces of white scaly hairs; about six rather strong marginal scutellar bristles, also brownish-rufous; pleurae pallid quaker drab, almost bare and with a similar pubescence on the mesopleura as in the preceding species.

Wings feebly but distinctly tinged brownish with all the veins blackish and hardly paler at the base; cell R_5 almost always closed on the very wing margin but it may be closed at a very short distance from the margin (in which case its petiole is minute), or, in rare cases (two specimens out of 35) it may be open and the tips of the veins R_5 and M_1 are very approximated; r-m cross-vein placed well before the middle of 1st M_2 cell. Halteres warm pinkish-buff.

Legs ochraceous-buff and blackish-brown, clothed with very short, closely adpressed and not dense white scaly pubescence which hardly obscures the ground colour; middle coxae blackish-brown on their almost entire an-

terior sides; front and middle femora blackish-brown on their entire antero-dorsal side; posterior femora with the blackish-brown colour much more extensive, leaving only the basal fourth and the ventral side ochraceous-buff; anterior and middle tibiae ochraceous-buff, the former pair obscured on their anterodorsal side (chiefly owing to the minute, velvety dark reddish-brown pubescence); hind tibiae obscure reddish-brown all over but usually less so on the ventral side; front and hind tarsus segments dark reddish-brown, particularly the apical ones; middle tarsi with the basal segment ochraceous buff and the remaining segments becoming gradually darker to the tip; front metatarsus with the remarkably elongate blackish-brown bristle on the underside, just before the tip; posterior femora with one row of posteroventral bristles, only one bristle near the tip being present in the position of the usual anteroventral row; all the bristles are black except the ones around the apex of the middle tibiae ochraceous buff but with their apical third or fourth black and occasionally two or three of the bristles of the ventral row of the hind tibiae may be yellowish-rufous; claws black and obscure reddish-brown about the base; pulvilli pale straw yellow.

Abdomen clothed for most part with fine, adpressed, curled (as if brushed outwardly and parted in the middle) ochraceous-tawny pubescence and with adpressed, flattened, pure white scaly hairs forming a large lateral triangular spot, one on each side of the outer upper halves of the second to the fifth segments; the above mentioned pubescence (ochraceous-tawny and white) is more dense than in *aegyptiacus* and almost entirely conceals the blackish back ground of the segments and their paler ochraceous-buff lower margins: first segment pale mouse grey, clothed on its posterior half with some adpressed, flattened, white scaly hairs, with short, adpressed, curled, pale ochraceous tawny hairs about the middle (below the margin of the scutellum) and with the usual fringe of erect, long, white hairs on the anterolateral margins which are more dense and tufted than in the preceding species: sixth and seventh segments clothed with fine ochraceous-tawny pubescence and with adpressed flattened pale yellowish or dirty whitish scaly hairs on the sides, in the position of the lateral triangles; these scaly hairs however do not form triangles here but cover almost the entire lateral thirds of these two segments; all the fairly strong erect bristles on the hind margins are pale yellowish-brown; venter dark ochraceous-buff with the lower margins of the third to seventh segments cream colour and clothed with scattered, adpressed, flattened, white scaly hairs as well as with tufted but not dense, longish, erect white hairs; sixth and seventh sternites with decidedly numerous, longish cream coloured bristles on their lower margins. Genitalia shining obscure reddish-brown and covered above (in fresh, well preserved specimens) with dense closely adpressed, short pure white scaly

hairs but the lateral margins and apex is clothed with very fine somewhat tufted dark brown hair; lateral fringes of genitalia very well developed, tufted (very much as in *aegyptiacus*) and varying from all light ochraceous to brownish-black with the apex of the bristly hairs usually lighter in colour.

♀ : Similar to the male but shorter; vertex and upper half of frons buckthorn brown, lower half of frons neutral grey with all the erect bristly hairs on the ocellar tubercle and sides all brownish-yellow; front metatarsus with two remarkably elongate blackish bristles on the underside just before the tip.

Abdomen distinctly shorter than in the male and with the seventh segment (apparently forming the base of the ovipositor) usually much narrower than the preceding segments, short, somewhat cylindrical, and bearing fine but longish stiff blackish hairs forming a fringe around its posterior margin; bristles on posterior margins of third to fifth sternites pale brownish-yellow, but the stronger bristles towards the middle of the lower margin of the sixth sternite are black.

♂, ♀ Length (including exerted proboscis) : 9.8-14 mm.; breadth (with wings expanded) : 9.5-13 mm.

22 ♂♂ and 12 ♀♀ all captured in Southern Sinai in Wadi El-Legh and Wadi Garagneya at 1750 metres altitude during June, July and August 1941-42.

***Amictus pulchellus* MACQ.**

Macquart (1849), *Explor. scient. de l'Algérie*, Zool., III, 454, 191, 1V, f. 8; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 24.

SYNONYMY :

strigilatus Lw. (1869), *Beschr. europ. Dipt.*, I, 339, 136.

tener Beckl. (1906), *Zeitschr. f. system. Hymen. u. Dipt.*, I, 244 (f. 13); Engel (1937) in Lindner : *Flieg. Pal. Reg.*, 25, Bombyl., 26.

DIAGNOSIS :

A medium sized ochraceous-tawny species, distinguished by the two white lines on the thorax extending no further than the middle of the disc, the very small insignificant white side spots or markings on the abdomen, the wings with cell R_s always widely open, and by the absence of the remarkably elongate bristle on the ventral side of the front metatarsus, just before the tip.

DESCRIPTION :

♂ *Head* (Pl. XV, fig. 262, and Pl. XVI, fig. 263) entirely covered with maize yellow tomentum which is somewhat darker and usually rather less dense on the vertex and occiput; face and lower half of frons with fairly dense pale yellowish bristly hairs, those on the face being usually rather shorter, and paler (almost white) than the bristles above; ocellar tubercle with a similar tomentum as that on the occiput and with a rather dense tuft of longish, erect brownish-yellow bristly hairs, two or three of which may be black; occiput with short, erect (but not tufted) brownish-yellow pubescence; palpi more or less light ochraceous-buff with very fine, longish (particularly about the tip) yellowish pubescence; antennae usually with the basal segment entirely yellow to brownish-yellow, the short second segment brownish-yellow with the anterior dorsal two thirds blackish and the third segment entirely blackish; occasionally however all the segments may be blackish-brown with the apex of the first segment and both extremities of the second segment brownish-yellow; the very short insignificant pubescence consists of a few yellowish hairs on the dorsolateral sides of the two first segments and a few microscopic blackish hairs about the tip of the third segment.

Thorax ochraceous-tawny, owing to being covered by dense, short, adpressed pubescence of that colour and with admedian longitudinal stripes formed of short, broad, closely adpressed white scaly hairs which arise from the anterior margin and end somewhat below the middle of the disc (about parallel with the wing bases); the usual white side stripes are here very ill-defined and may be perceived by the presence of a few short, broad, adpressed white scaly hairs on and around the praesutural depression and by the pale yellowish (almost white) colour of the bristly hairs and bristles in the upper half of the lateral margins; all the rather numerous (in comparison with the two preceding species) bristles and bristly hairs on the margins of the disc as well as the bristles (rather weak) in the admedian white longitudinal stripes are pale yellowish to pale brownish-yellow, but most of those situated among the ochraceous-tawny pubescence of the anterior half as well as most of the weak (but numerous) d.c. bristles of the posterior half are black; scutellum bearing a similar (but less dense) short, curled, adpressed ochraceous-tawny pubescence to that of the scutum and with about six usually all pale brownish-yellow marginal bristles which are sometimes accompanied by one or more inner rows of about six to twelve much shorter brown or blackish bristly hairs; pleurae pale yellowish-grey and bare except for the usual tuft of broad white scaly hairs on the middle third of the mesopleura accompanied in front, by some fine longer, more erect white hairs and above, by much longer, upturned pale yellow hairs.

Wings entirely hyaline with brownish-black veins; cell R_5 always very wide open; r-m cross-vein placed at the commencement of the distal fourth of 1st M_2 cell; halteres massicot yellow, usually yellowish-brown or brown about the base.

Legs reddish-yellow with a small round-oval dark brown spot on the outerdorsal side and at the tip of all the femora; posterior femora often somewhat darker and the usual very short and very closely adpressed whitish scaly pubescence is apparent on the femora only; all the posterior tarsus segments and only the apical segment of the front and middle tarsi are obscure more or less dark reddish-brown (partly due to the very short blackish pubescence); front metatarsus without the remarkably elongated bristle on the underside, just before the tip; all the bristles are black except two or more around the apex of the middle tibiae pale yellowish but with black tips; claws black but very dark reddish-brown at the base; pulvilli pale cream colour, darker at the base.

Abdomen almost entirely clothed with fine, adpressed, curled (as if brushed outwards and parted in the middle) ochraceous tawny pubescence and with the adpressed, flattened, white scaly hairs present on greatly reduced areas on most of the segments, as follows: second segment with two large triangular white markings (by far the largest and not unlike the markings or spots found on the corresponding segment of the two preceding species) one on each side of the segment with the rather deeply convex base of the triangle running obliquely outwards; the outer lower angle of the white triangle reaches the extreme outer margin of the posterior border of the segment; the third segment possesses similar but smaller and narrower white triangular markings and on this segment the base of the triangle is even more deeply convex and its outer lower angle which reaches the extreme outer border, does not extend down as far as the lower margin of the segment; fourth segment with the white markings usually reduced to two very small oblong and oblique spots situated one on each side of the upper fifth and touching the upper margin of the segment but it may also bear very small lateral white triangular markings, much smaller than the similar markings on the preceding segment; fifth to seventh segments with two narrow elongate somewhat semi-circular longitudinal white stripes (composed of short, adpressed, coarse, white pubescence), each stripe situated towards the middle of each half of the segments and extending from the upper margin of the fifth to the lower margin of the seventh segment; ground colour of first segment black with the lower margin and sides broadly light buff; second to fourth segments also black with reddish-yellow to reddish-brown lower margins and this ground colour is usually hidden by the dense pubescence (particularly so in fresh, unrubbed specimens); first segment with

much paler and less dense ochraceous-tawny pubescence on about its middle two thirds (arising from the black background), and with longer white hairs on the sides; the usual fringe of long, erect, brownish bristly hairs on the upper third of the basal segment is here very tufted with most of the hairs coarse and truncate at the tip (rather similar to the corresponding fringe in *A. setosus* Lw.); all the bristles on the hind margins of the tergites are pale brownish-yellow; venter light ochraceous-buff with the lower margins of the sternites (at least the basal segments) very pale ochraceous-buff and clothed with short, very adpressed, white scaly hairs (except on the pale areas) as well as with numerous long erect whitish or very pale yellowish bristly hairs; the two apical sternites each with a row of weak brownish bristles near the lower margin; genitalia more or less dark reddish-brown, paler about the apical third and unusually prominent and exposed owing to the lateral fringes being practically absent; the pubescence dorsally is short very adpressed and from whitish to pale brownish-yellow but laterally and ventrally it consists of longish (but not tufted) pale brownish hairs and bristly hairs, some of which are usually blackish.

♀ : Very similar to the male but the abdomen is much broader, being somewhat conical and subacute at the tip; frons with more or less dark reddish-brown bristly hairs on the broader sides of the upper half; chaetotactic bristles of thorax and abdomen rather more numerous and somewhat stronger than in the male; abdomen with the white spots or markings (due to short, closely adpressed, coarse white hairs) much more reduced as follows : on the second segment the white marking covers the upper lateral angles of the segment in the shape of a narrow-elongate triangle on either side, whose inner angles are situated on the upper margin but well before the middle and their lower outer angles on the outer margins and towards the middle of the segment; on the third segment the markings form two shallow transverse bands across the front border, the outer margins of which are broader (ending on the extreme lateral margins of the segment) than their inner margins which terminate in a point well before the middle of the segment; fourth to sixth segments each with a pair of small oblong, oblique, admedian white spots on the upper border; seventh short, conical segment (apparently forming base of ovipositor) with short but stiff blackish bristly hairs surrounding its hind margin; some of the bristles on the two or three apical segments of the abdomen may be black.

♂, ♀ Length (including exerted proboscis) : 8.2-11.8 mm.; breadth (with wings expanded) : 9.5-11.9 mm.

25 ♂♂ and 31 ♀♀ from Mariout, and from several localities in the neighbourhood of Cairo (South-West) : Sakkara, Abu-Rawash, Kafr Hakim, Megadlah, Kerdacé and Mazghouna; from end of March to middle of May 1931-40.

Amictus setosus LW.

Loew (1869), Besch. europ. Dipt., I, 243, 138; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte (1924), 198, 199; Engel (1937), in Lindner: Flieg. Pal. Region, 25, Bombyl., 25, 26.

SYNONYMY :

validus Lw. (1869), Besch. europ. Dipt., I, 244, 139; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte (1924), 198, 199; Engel (1937), in Lindner: Flieg. Pal. Region, 25, Bombyl., 26, 27, fig. 13; Austen (1937), Bombyl. of Palestine, 78, 79.

DIAGNOSIS :

A medium sized ochraceous-tawny to tawny-olive species, distinguished by the absence of white stripes on the dorsum of the scutum, by the erect bristly hairs on the ocellar tubercle being always black and by cell R_5 which is usually closed on or immediately before the wing margin or open but with the apex of R_5 and M_1 veins very approximated.

♂ : Head (Pl. XVI, figs. 264 and 265) ochraceous-tawny (more or less pale) tomented with the face, as usual, much paler and the ocellar tubercle darker (brownish); the pubescence on the face consists of numerous, long, erect, pale cream buff bristly hairs, almost true bristles (much coarser and much more bristly than in the other four species); the pubescence on the lower half of the frons is similar to that on the face but the bristly hairs of the upper border (of this tuft) are always black; ocellar tubercle with a fairly dense tuft of longish erect black bristly hairs; the usual short erect pubescence on the occiput is pale brownish-yellow; palpi light ochraceous-buff with very fine short sparse whitish pubescence but often some of the shorter (minute) hairs are blackish; antennae with the first and second segments black or blackish-brown above and cinnamon-buff below, and with the third segment black except at the extreme base cinnamon-buff; the very short to minute pubescence on the antennae is mostly blackish.

Thorax clothed for the most part with fine, short, adpressed ochraceous-tawny hairs which is not dense enough to conceal the characteristic ground colour and without traces of broad, flat scaly hairs on the disc except for a few white ones on either side on the lateral margin above and in front of the wing base, and some coarse white hairs on the anterior margin of the disc in the position of the admedian longitudinal stripes; the ground colour of the scutum is blackish to dark carob brown with two admedian pale mouse grey longitudinal stripes extending from the front to the lower border (or almost) but which are by no means conspicuous and they may

be ill-defined or almost invisible in very fresh unrubbed specimens; the dark carob brown to blackish colouration however is more characteristic and consists of one narrow median longitudinal stripe extending from the upper to the lower margins and two shorter, broader ill-defined stripes, one each side between the outer border of the grey stripe and the lateral margins of the disc but not extending on the humeral calli nor on the postalar calli; the pubescence on the anterior and lateral margins of the scutum above the wing bases is longer, as usual, and very long, tufted and bristly in front of the humeral calli; most of the bristles are brownish-yellow but the shorter, weaker bristly hairs on the sides of the upper half of the disc are yellowish-white and all the weak and stronger d.c. are black; sometimes one or two of the postalar bristles are also black; pleurae pallid mouse grey with ill-defined darker areas and practically bare except for the usual tuft of longish erect yellow to pale yellowish-white hairs on the upper third or fourth of the mesopleura and beneath which the elongate tuft of shorter stout, white scaly hairs (the ones in front of these are longer, fine and not at all scaly); the sternopleura also bears a patch of similar but shorter white scaly hairs on its upper front margin; scutellum blackish on about its basal half and broadly pinkish cinnamon to pinkish-buff about the lateral and hind margins (in ground colour) and clothed with short, fine, curly ochraceous-tawny pubescence all over; six to eight strong black marginal scutellar bristles, one or two of which may occasionally be brownish-yellow.

Wings very feebly tinged grey and all the veins blackish-brown; cell R_5 is usually closed at the very wing margin but it may be so just before the margin, in which case the stump is very short or minute, but not unfrequently also this cell may be open and if so, its apex is much narrowed (i.e. the apices of veins R_5 and M_1 are very approximated); halteres straw-yellow and brownish near the base.

Legs as in the preceding species but the obscure reddish-brown colour on the posterior femora is less extensive and the black bristles on the ventral side are less robust; front metatarsus without the remarkably elongate bristle on the under side just before the tip; claws black and obscure yellowish-brown at the base; pulvilli pinkish-buff.

Abdomen very distinct by the almost total absence of white scaly hairs; its ground colour is black with the posterior margins of the segments ochraceous-buff and all the segments except a fairly large portion of the second, bear a uniform, fairly dense, fine, short, curled ochraceous-tawny to tawny-olive pubescence; first segment with the fine pubescence less dense, as usual, and present only on about the middle third and hind margin, and on the upper outer sides it consists of long, erect, tufted pale yellowish-brown bristly hairs, not unlike those found in *pulchellus*; second segment with

short, adpressed, white scaly hairs forming a pair of admedian, oblique, lateral triangles, the upper inner angle of which is situated on the upper border but before the middle of the segment, and its lower outer angle almost touching the lower border on the extreme outer margin; the oblique base of the triangle is very convex, similar to the white triangles in *pulchellus*; third segment either with the oblique, admedian, white triangles smaller, narrower (with the oblique base more deeply convex) or with just a small tuft of short, adpressed white scaly hairs in the position of the upper inner angle of the triangles (described on the preceding segments); fourth segment either with a pair of similar tufts in the position of the admedian pair found on the third segment and with a pair of small oblong white stripes (composed of short, adpressed, white scaly hairs) one on each side on the lower half or third of the segment close to the outer margin or the white scaly hairs may be entirely absent; fifth to seventh segments usually with a pair of oblong or quadrate whitish spots, one on each side of the lower half (or less) of each segment near the outer margin; these spots may be almost entirely absent (owing to the whitish scaly hairs being replaced by short, fine, curly ochraceous-tawny pubescence) or they may, in a few cases, be prolonged above to beyond the middle of the segments (particularly of the fifth and sixth); the rather numerous and strong bristles on the posterior margins of the segments are all brownish-yellow; venter pale pinkish-buff, clothed with short, flat, very adpressed white scaly hairs as well as with long, erect, whitish hairs; these, however, are not dense and are sparser about the middle of the sternites. Genitalia brownish-red to reddish-brown and clothed on the basal two thirds with short, adpressed, coarse whitish bristly hairs and on the apical third with very fine, short, sparse, erect brownish to blackish hairs; lateral fringes of genitalia only fairly well developed, shorter, much less tufted than, and not as bristly as, in *Shafiki*, but decidedly more developed than in *pulchellus*; the tufts consist of longish erect black hairs and a few rather shorter white hairs mixed with the latter.

♀ : Very similar to the male but the abdomen being, as usual, broader and less cylindrical (somewhat dorsoventrally flattened, very gradually tapers towards the apex; the broader upper half of the frons bears on the sides erect blackish bristly hairs; antennae with the blackish colour apparently somewhat more extensive than in the male.

Abdomen with the white or whitish markings or spots (formed by short, adpressed white scaly hairs) even more reduced and more inconspicuous than in the male, in fact they may be described as vestigial, for, as a rule only a very few (about 8-15) short whitish scaly hairs are visible in the corresponding position of the white triangles and spots in the male. Seventh abdominal segment with an apical fringe of short erect blackish bristly hairs.

♂, ♀ Length (with proboscis extended) : 9.0-12.5 mm.; breadth (with wings expanded) : 8.0-12.2 mm.

3 ♂♂ and 14 ♀♀ from Ezbet-el-Nakhl and Marg (North East of Cairo) and from Mariout (Ikingi to Hammam) during April and May (1921-28).

Amictus Shafiki NOV. SPEC.

DIAGNOSIS :

Ochraceous-orange species (one of our largest), easily distinguished by the pallid mouse grey to pale yellowish-grey longitudinal stripes on dorsum of thorax, the wings which are feebly but distinctly tinged grey and with cell R_5 always closed at some distance from the wing margin (as in *aegyptiacus* Param.), and by the presence of the remarkably elongate bristle on the under side of the metatarsus of the front leg just before the tip.

DESCRIPTION :

♂ : *Head* (Pl. XVI, fig. 266); frons and occiput from greyish pale pinkish-cinnamon to dark brownish-grey; face from pale colonial-buff to cream-buff, shining, with scattered whitish to pale yellowish pubescence; the longer hairs on the sides of the lower half of the frons are yellowish; ocellar tubercle greyish-black with yellowish-brown to blackish pubescence; palpi from brownish-rufous to pale ochraceous-buff with minute blackish pubescence all over; antennae blackish with the basal segment reddish-brown (more or less dark) on the ventral side and at the tip, and usually also the small second segment is reddish-brown at both extremities as well as ventrally and the apical segment of the same colour at the extreme base; this reddish-yellow colour is often much reduced and the antennae may be all blackish; the minute, sparse pubescence on the dorsum and sides of the segments is blackish.

Thorax; dorsum clothed with short adpressed ochraceous-orange hairs, which on the anterior part of the dorsum are interrupted by a pair of rather sharply defined, admedian, pallid mouse grey to pale yellowish-grey longitudinal stripes, commencing on the fore margin and extending almost to the hind border; these stripes are fairly broad (being a little broader, as usual, in front), distinctly grey and clothed with short adpressed and not at all scaly greyish to pale yellowish-rufous hairs; the lateral border of the dorsum, between the humeral callus and the base of the wing, on each side, is also pallid mouse grey toment with some fine white hairs (and remarkably few white scales which are often entirely absent) so that the dorsum of the scutum bears three very distinct broad dark ochraceous orange longitudinal stripes; the pubescence on these stripes (particularly on the

median stripe) is fairly sparse, as if it had been rubbed off, especially in the centre and shows a distinct, characteristic carob brown colour which gives the stripes a conspicuous dark appearance; the bristles are not numerous but rather strong, mostly brownish-yellow except the much shorter and weaker ones on the lateral borders above, which are whitish to pale yellowish, and the few insignificant weak d.c. black; scutellum of blackish to carob brown ground colour with a broad reddish-brown margin (excluding the base) and bearing a sparse (very easily rubbed off) short, fine curled ochraceous-orange pubescence; about six strong brownish-yellow marginal scutellar bristles; pleurae from pallid mouse grey to quaker drab with the usual pubescence on the mesopleura (a few long erect whitish hairs on the upper third and a small tuft of very few short white scaly hairs beneath these) and a meagre tuft of white bristly hairs on the upper angle of the sternopleura.

Wings very feebly but distinctly tinged grey with all the veins brownish-black; cell R_5 closed at a distance from the wing margin and consequently with a long stump (even longer than in *aegyptiacus*); vein R_4 bifurcate from R_5 almost at right angle (at a short distance from the closed apex of cell R_5), running straight for a short distance and showing a tendency to emit a short stump at the point where its undulation begins; r-m cross-vein placed well before the middle of 1st M_2 cell; halteres amber yellow, somewhat obscure brownish about the base.

Legs entirely reddish-yellow ventrally (except the apical half or third of the posterior tibiae and the posterior tarsus segments yellowish to reddish-brown) but all the femora (the posterior pair particularly) are obscure reddish-brown dorsally and laterally and all clothed with the usual very short and very adpressed whitish scaly pubescence; in addition, all the femora possess an antero-dorsal dark brownish spot on the apex; anterior and middle tibiae yellow except the anteroventral side of the former obscure brownish (chiefly owing to the minute blackish pubescence as usual); posterior tibiae reddish-brown dorsally and laterally; all the tarsus segments are obscure reddish-brown except the metatarsus of the middle legs yellowish, and the apical tarsus segments of all the legs blackish (the dark colour being, as usual accentuated on the hind legs and partly due everywhere to the minute blackish hairs); the remarkably elongate blackish bristle on the underside of the front metatarsus, just before the tip is present; all the bristles are black, rather numerous and well developed; claws black but obscure blackish-brown about the base; pulvilli pale buff.

Abdomen; dorsum clothed for most part with fine adpressed curled (outwardly, as if brushed in the middle) ochraceous-orange pubescence and with adpressed, flattened, pure white scaly hairs forming a pair of admedian,

oblique, lateral triangles on each of the second to fifth or sixth segments giving the abdomen a banded appearance; first segment bearing short adpressed coarse yellowish-grey hairs on rather more than its middle third and with much longer erect tufted pale yellowish-grey hairs on the sides (which become even paler, almost white on the extreme sides); the admedian triangular white markings situated on the upper half of each of the second to fifth or sixth segments are decidedly narrower than in *aegyptiacus* and *gebeli*, i.e. their outer-posterior angles situated towards or just below the middle of the lateral margins of their respective segments and their inner angles on the upper margin, do not meet, thus leaving a short space; on the sixth segment the white admedian markings may hardly be called triangular, but merely oblique, quadrate or oblong white spots and these are often absent (undoubtedly having been rubbed off, being close to the genitalia); seventh segment with sparse short adpressed ochraceous-orange pubescence and a very few white hairs in the position corresponding to that of the white spots on the preceding segment; the ground colour of the first to sixth segments is blackish to carob with the lower margins pale reddish-yellow; seventh segment obscure brownish-red; dark orange cinnamon on the sides and pale cream-buff on the middle third (the actual sternites); the short, adpressed whitish scaly pubescence is present all over but not dense and, in addition, there are characteristic tufts of short adpressed blackish-brown scaly hair forming a pair of small rounded-oval admedian dark spots near the upper border of each of the second to fifth segments; there are also some long erect (but not tufted) white hairs on the outer thirds of most of the segments (except the basal); fifth to seventh sternites with a few pale yellowish-brown marginal bristles. Genitalia shining, more or less dark obscure brownish-red and clothed above, on the basal half with dense short very adpressed yellowish-white scaly hairs and on the apical half with sparser fine yellowish-red hairs which soon become longer, much more dense, fine and blackish all around the margins; lateral fringes of genitalia very well developed, tufted and decidedly bristly, consisting mainly of long blackish bristly hairs dorsally with a few whitish hairs intermingled, especially above, and of brownish-rufous bristly hairs on the sides and beneath; the latter are always much paler about the tip and the bristly hairs on the ventral side are often blackish about the base.

♀ : Very similar to the male but the abdomen, as usual, very gradually tapering towards the apex; the broader upper half of the frons bears on the sides some erect brownish-rufous bristly hairs and together with the occiput bear an ochraceous-buff tomentum. The ventral rows of bristles on the hind femora are reduced (as usual in the female) to about three pre-apical black bristles; metatarsus of anterior legs with two remarkably elongate black

bristles on the ventral side just before the tip. Seventh abdominal segment (apparently forming part of the ovipositor) clothed with fine short, closely adpressed ochraceous orange pubescence and with much longer erect decidedly bristly black hairs around the posterior margin, forming a bristly fringe.

♂, ♀ Length (with proboscis extended) : 10.8-15.2 mm.; breadth (with wings expanded) : 10.5-13.5 mm.

41 ♂♂ and 14 ♀♀ from Wadi El-lega and Wadi Garagneya, South Sinai at an altitude of 1750 metres, all captured by my assistants Shafik and Tewfik and myself between the middle of June and the end of August 1941-42.

ONOPHORUS

(Meigen 1803, Illiger's Magaz., II, 268, 45)

SYNONYMY :

Ploas Latr. (1804), Dict. Hist. Nat. Déterv., XXIV, 190, 524, et Hist. Nat. Crust. Ins., XIV, 299.

Calopelta Greene (1921), Proc. Ent. Soc. Washington, XXIII, 23, 24.

TYPE OF THE GENUS :

virescens Fabr.

Characterized by the first antennal segment which is remarkably thickened, elongated and bearing ventrally and laterally long, tufted, coarse pubescence, the wing design and venation, the absence of bristles and by the very long and tufted (in places) pubescence on the thorax and abdomen.

Head about as broad as the thorax with the face very short and the genae narrow owing to the mouth opening extending from a point level with the lower margins of the eyes to almost the base of the antennae; the mouth opening and proboscis are directed forward and the latter is usually of moderate length (approximately of the length of the antennae, except in *macroGLOSSUS* Duf. in which it is said to be remarkably elongated) and ends in two fleshy labellae; palpi consisting of one narrow very elongate segment. The eyes meeting on the frons in the male but widely separated in the female. The ocellar tubercle is placed somewhat isolated in the centre of a furrow which runs up from the depressed insertion of the neck to the vertex, between the rather puffed out sides of the occiput. Antennae with the basal segment remarkably thickened, elongated, and clothed on the ventral and lateral sides with long, tufted, coarse hairs; second segment small, short

subcylindrical and clothed with shorter and less tufted hairs; third segment almost bare, spindle-shaped or lanceolate, usually with a ring-shaped constriction near the base and with a minute, short cylindrical apical style bearing a short terminal bristle.

Thorax without bristles but clothed with a more or less dense, long (often coarse) hairs; this pubescence is usually very dense and tufted and often forms a longitudinal stripe on the upper margin of the mesopleura while the remaining surface of the pleurae is either bare or sparsely and feebly pubescent.

Wings usually tinged grey and spotted or the veins margined with brown; in the males of some species the costa is provided with short spines which are wanting in the females; 1st A cell open; r-m cross-vein usually placed well before the middle of 1st M_2 cell; apical portion of R_2^{+3} suddenly elbowed at right angles from its base and with the costa, and resembling a cross-vein; alula narrow, feebly developed; alar squamae with marginal hairs; the halteres are said to afford reliable distinctive characters among the different species by the colours of their stalk and knob.

Legs normal in length and strength; the tibiae bear rows of short bristles and the femora are clothed ventrally with longish delicate hairs; in addition the tibiae and femora bear adpressed scaly hairs as in the preceding genus.

Abdomen conical, about as broad as the thorax and with a characteristic pubescence which is always much more dense and furry on the side margins than on the dorsum of the tergites, often so much so that the abdomen appears, with the naked eye, to be much broader than the thorax. The male and female genitalia are always more or less concealed by the dense pubescence.

The metamorphosis of the members of this genus is unknown.

Greene (1921, *loc. cit.*) had based his genus *Calopelta* on the species which possess only two submarginal cells; these were given by Paramonow (1929), *Mém. Acad. Sci. de l'Ukraine*, XI, livr. 2, p. 157, and by Engel (1937, *loc. cit.*), a subgeneric rank.

Out of the 35 species recorded so far from the Palaearctic Region only one occurs in Egypt.

***Conophorus aegyptiacus* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte* (1924), 172-74, ♂; Paramonow (1929), *Mém. Acad. Sci. Ukraine*, XI, livr. 2, 159, 162, 163; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 30, 31-32.

DIAGNOSIS :

A small blackish-brown, furry species, at once distinguished by the abnormally thickened first antennal segment, the grey wings possessing a brown spot on the apex of almost every longitudinal vein as well as on every cross-vein and by the long tufted and furry mixed black, greyish and pinkish-buff pubescence on the lateral margins of the abdomen which makes the latter appear (with the naked eye) to be much broader than the thorax.

DESCRIPTION :

♂ ; *Head* (Pl. XVI, figs. 267 and 268) ; the very small triangular frons is from very pale silvery greyish-yellow to shining deep colonial-buff pulverulent and bare ; the short face and the narrow and very elongate genae as well as the lower part of the sides of the buccal cavity and occiput bearing a similar pulverulence as that on the frons and with very long fine (not tufted) pubescence ; the hairs on the face and on the upper half of the genae are black and those on the lower half of the cheeks, on the sides and below the buccal cavity as well as on the basioccipital region are all whitish to pale yellowish-grey ; occiput, all around the upper and lateral margins of the eyes with sparse but long upstanding black hairs and with much shorter, much more numerous (somewhat tufted) light cinnamon-buff hairs ; proboscis rather stout, robust, about as long as the antennae and brownish-black ; palpi dark reddish-brown, as long as, or somewhat longer than, half the length of the proboscis and bearing very sparse fine short blackish pubescence ; antennae black and covered with a thin whitish pulverulence, which gives them a dull greyish-black appearance ; the long tufted, furry pubescence beneath the third joint is all black and, among the shorter and sparse (not at all tufted) black hairs above and on the sides there are some quite short decumbent yellowish hairs ; second segment elongate-subglobose, with black pubescence consisting of a short, not dense tuft of hairs beneath and of a very few (even shorter) hairs dorsally ; third spindle-shaped third segment almost bare, its pubescence consisting of about eight very scattered microscopic yellowish hairs.

Thorax very dull brownish-black with a very thin, sparse cinnamon-buff to very pale yellowish-white pulverulence forming three very inconspicuous lighter longitudinal stripes on the disc and with thin whitish pulverulence on the lateral and hind margins ; the light coloured stripes consist of a very thin median line extending from the front border to the lower two-thirds of the disc, and of two admedian broader, ill-defined stripes which extend from the upper to the lower margins (more or less distinctly) being

broadly towards both extremities and expanding outwardly towards the middle over the transverse suture; the lateral and lower margins of the disc are always broadly grey (owing to the whitish pulverulence); the pubescence on the disc is very sparse, consisting of a few scattered fine, longish, erect black hairs among which are mixed some scattered, short, decumbent yellow or yellowish hairs; on the sides of the disc the black pubescence is much longer, somewhat more dense, especially above the wing base and, on the lower half, below the base of the wings, there are a few shorter finer white hairs mixed with the black; pleurae clothed with a fairly dense whitish pulverulence and consequently appearing pale olive-grey (like the lateral and hind margins of the scutum); the very dense tufted and furry stripe on the upper part of the mesopleura consist mainly of long erect chamois hairs and of some longer coarse black hairs; the rest of the pleura is bare except for a very few fine longish erect pale yellowish scattered hairs over the middle third of the sternopleura. Scutellum black, very shining, as if rubbed and highly polished, except on its basal fourth or third and on its lateral angles, dull owing to a thin pale yellowish or whitish pulverulence; the pubescence is not unlike that of the scutum but decidedly sparser, the long erect black hairs are scattered all over, but the short decumbent yellow hairs are found only on the pulverulent area (being a little longer and less decumbent on the upper lateral angles than about the centre).

Wings dark grey with all the transverse and cross-vein and all R_1 vein broadly margined with more or less dark brown and a small rounded paler brown spot on every longitudinal vein just before the apex; there is a small elongate transparent whitish space, appearing as a whitish spot, extending above and below the base of the R and M fork; three submarginal cells, caused by M_1 being united to R_3 by a cross-vein; r-m cross-vein placed just before the middle of 1st M_2 cell; costa provided with minute blackish spines; the upper basal third of the wing and above the base of the costa there is a tuft of short, very adpressed, coarse pinkish-buff hairs; stalk of halteres deep pinkish-buff to pinkish-cinnamon, darker towards the apex and with a brownish-black knob.

Legs entirely black with the basal segments bearing a thin whitish pulverulence, which gives them a greyish black appearance and with all the soft erect pubescence (very sparse) and the very weak bristles black; the short, very adpressed coarse pubescence on the femora and tibiae is shining ochraceous-buff.

Abdomen very flat dorsally, entirely dull black (hardly greyish) and bearing a mixed very long, erect black pubescence as well as much shorter (very short) decumbent pale yellowish-white to ochraceous-buff hairs; on the

dorsum both types of pubescence are sparse and scattered but on the lateral margins of the segments they are dense tufted and furry and the pale coloured decumbent hairs are much longer than on the dorsum (about one third the length of the black hairs) more erect and form light coloured tufts alternating with black (longer and coarser tufts); venter black but more greyish than the dorsum owing to denser whitish pulverulence and with very sparse long, fine, pendent black hairs and some similar white hairs; the small elongate-ovate, apparently bilobed genitalia are black with sparse, erect longish black pubescence.

♀ : *Novum*.

Similar to the male but smaller and the grey and brownish colour of the wings is less intense; the very broad frons (Pl. XVI, fig. 269) and vertex (the latter being quite three times as broad as the ocellar tubercle) bear a thin greyish-ochre pulverulence similar to that which extends on the occiput; the pubescence on the frons is not dense and consists of longish erect black hairs and of some shorter, less erect yellow hairs; the bristles on the costa although more minute than in the male, are present.

♂ Length : 5.6-6.5 mm.; breadth : 8.5-9.5 mm.

♀ Length : 4.3-5.0 mm.; breadth : 7.8-8.7 mm.

29 ♂♂ and 2 ♀♀ (including the type) all captured from the Mariout district (Ikingi to Hammam) between the middle of February to April 5th 1921-27. There is no record of this insect from any other part of Egypt. The female appears to be remarkably rare as can be seen by the figures given above.

Bezz (1925, *loc. cit.*) in his original description of the male compares this species with *bellus* Beck. to which, he states, it is very closely allied. According to the same late author, *aegyptiacus* is smaller and slimmer than *bellus* and differs from the latter by the absence of the tufts of yellowish hairs on the ventral side of the third antennal segment, by the absence of white lines (longitudinal stripes) on the dorsum of the thorax and by the design of the wings being more simple.

PRORACHTHES

(Loew 1868, *Berl. Entom. Zeitschr.*, XII, 381)

TYPE OF THE GENUS :

Ledereri Lw. (1868), *Berl. Entom. Zeitschr.*, XII, 380, 10 et 382.

Small to medium sized flies, of black ground colour and pubescence with the somewhat opaque white wings profusely spotted with black. Sexual dimorphism is remarkably well exhibited by the members of this genus in

the breadth of the third antennal segment, the palpi, the distance between the eyes and by the pubescence of the entire body.

Head hardly transverse, about as broad as, and fitted closely to, the thorax; face feebly produced over the mouth opening; frons in the male large, produced almost horizontally forward to the base of the antennae, with a median furrow and feebly but distinctly inflated on both sides (of the furrow); in the female the head is much broader and is orbiculate on its lower half; eyes touching (for a rather long distance) in the male and widely separated in the female; occiput moderately inflated in the male and rather more so in the female; proboscis much shorter than in the preceding genera and with short pubescence dorsally; palpi unisegmented⁽¹⁶⁾, narrow-elongate in the male and remarkably broadened in the female; first segment of antennae somewhat thickened, especially towards the apex; second segment small, subglobose; third segment as long as or longer than the first segment, laterally compressed, broad elongate-ovate, much broader in the female, clothed with short stiff hairs on the dorsal margin or edge and ending (in both sexes) in a comparatively broad cylindrical apex which possesses minute hairs in a shallow pit.

Thorax of dull black colour, with a much longer and denser pubescence (usually also black) in the male than in the female, as well as with short but conspicuous iridescent golden scaly hairs or scales; pleurae with sparse pubescence but the metapleurae are always with a well developed hair-fan; chaetotactic bristles absent; scutellum of a similar ground colour as the scutum and with a similar pubescence.

Wings with an opaque white (milky) membrane and profusely ornamented with black spots; 1st A cell open except in *P. Ledereri* where it is said to be closed at the margin; alula obsolete; squamulae with a hair fringe; the fork $R_4 + R_5$ is very broad and widely open at the margin owing to R_4 rising steadily and with a feeble S-shaped bend towards the anterior margin; r-m cross-vein placed before the middle of 1st M_2 cell.

Legs more slender and fragile than in the preceding genus and the tibiae possess short bristles or spicules.

Abdomen conical, comparatively short in both sexes, and like the thorax dull black with much longer and denser pubescence in the male than in the female, as well as with golden iridescent scaly hairs; male and female genitalia somewhat concealed and do not afford substantial differentiating specific characters.

The metamorphosis of the members of this genus is unknown.

The correct position of this genus had lead some of the authors who

(16) There is no trace of the «second segment» mentioned by Engel (1937, loc. cit., p. 49) in *P. longirostris* Bez., our only representative of this genus.

dealt with it into some contradictory errors. Bezzi (1925, *loc. cit.*, p. 172) for instance, after giving his very brief description of *P. longirostris* n. sp. ♂ writes: « Par la présence des spicules aux tibias, le genre *Prorachthes* doit se ranger dans les *Bombyliinae*; mais par ses palpes bi-articulés (Loew) il se rapproche des *Phthiriinae*, dont néanmoins il s'éloigne par la fourche cubitale large. Les metapleures ne portent pas de poils, mais chez le mâle le corps est bien plus velu que chez la femelle ».

I have already pointed out in the foot-note that the palpi in *P. longirostris* are not biarticulate; more over, the metapleura in the same species possesses a well developed hair-fan and according to Engel (1937, *loc. cit.*, p. 49) in all the other species the metapleura always bears a hair-fan in front of the halteres.

Out of the six species known so far, from the Palaearctic Region only one, *longirostris* Bez. has been recorded from Egypt; the other species are known from Hungary, Asia Minor, Persia and Turkestan.

***Prorachthes longirostris* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Ent. Egypte* (1924), 172; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 51, 52.

DIAGNOSIS :

A medium sized velvety black species, easily distinguished by the long black pubescence (shorter and much less dense in the female) among which are found numerous short glistening golden yellow scaly hairs, and by the opaque white (milky) wings which are profusely spotted with black.

DESCRIPTION :

♂ : *Head* (Pl. XVI, figs. 270 and 271) entirely black, dull, velvety and clothed with long, fine, erect, black pubescence, which, on the almost horizontally protruding (but short) lower half of the frons and on the face below, is so tufted that it conceals the first antennal segment; the front lateral borders of the two inflated sides of the lower half of the frons bear a few short, adpressed glistening golden-yellow scaly hairs; the long erect fine black pubescence is not at all tufted (rather sparse) on the genae and soon becomes dense and tufted again on the occiput; the well raised small triangular ocellar tubercle bears a tuft of longish erect black hairs; proboscis longer than the head, black and with the short stiff dorsal pubescence black; palpi blackish, elongate lamellate and shorter than half the length of the proboscis; antennae dull, black, velvety; first segment with long, erect, dense (rather tufted) black pubescence dorsally, all over, which

conceals the short second segment; third segment, broad-lanceolate, with a ring-shaped constriction near the base, about as long as the first segment, with from about ten to five stiff black hairs on its dorsal ridge and from five to two shorter black hairs ventrally.

Thorax dull velvety black with an extremely thin yellow pulverulence in the position of the usual three longitudinal stripes on the dorsum; these yellow stripes however are very inconspicuous, ill-defined and may be distinguished only under strong illumination; the long, soft, erect blackish pubescence is sparse on the disc and much more dense on the lateral margins (particularly of its upper half) and the short adpressed iridescent golden yellow scaly hairs or scales are very sparse, scattered here and there, the most constant position of a few, being on the lower half of the disc where they form two irregular oblique lines or stripes with the lower margin (of the stripes) directed outwards and reaching almost to the hind border of the scutum; in addition there is always a group of short adpressed golden yellow scaly hairs in front of the postalar calli; pleurae brownish-black, shining, almost bare except for a tuft of long, fine, erect, black hairs on the upper part of the mesopleura and a smaller tuft of similar long black hairs on the metapleura; scutellum dull black, with a thin, inconspicuous yellow pulverulence on its borders and with sparse, long, soft, erect black pubescence similar to that of the dorsum of the scutum.

Wings with the numerous black spots and patches extremely variable (different in the four male specimens known and unlike in the two wings of the same individual); 1st A cell open; r-m cross-vein also remarkably variable being placed in a couple of specimens as far out as towards the apical fifth of 1st M_2 cell and in the other two specimens towards the apical third of the latter cell; halteres with the basal half of the stalk more or less extensively brownish-yellow, the apical half blackish-brown (more or less dark) and the knob black.

Legs with all the femora blackish; the tibiae and tarsi yellowish-brown and all the knees (extreme apex of femora and base of tibiae) yellowish; the front tibiae and tarsi are distinctly paler than the middle and hind legs; the soft, longish sparse pubescence on the femora is blackish, but dorsally and laterally the very short closely adpressed pubescence is yellow and all the minute bristles or spicules on the tibiae are black; claws black but obscure dark reddish-brown at the base; the minute pulvilli are brownish-yellow.

Abdomen dull black with sparse, long, soft, erect blackish pubescence which is somewhat more dense (not tufted) on the sides and with sparse irregularly scattered short, adpressed iridescent golden yellow scaly hairs; these scaly hairs however, on the fourth to sixth segments are more pro-

fusely scattered over the tergites and are definitely directed inwards as if brushed towards the centre; venter obscure dark yellowish-brown somewhat shining and with a very sparse, scattered, soft, longish blackish pubescence; hypopygium small, dark reddish-brown with the short triangular forceps (seen from below) reddish-yellow.

♀ (*Novum*).

Not unlike the male but the general pubescence is so remarkably shorter that at a first glance it appears bare.

Head (Pl. XVI, fig. 272) entirely dull velvety black as in the male, but the broad upper part (about half) of the frons bearing short erect black hairs on the sides; the rest of the black pubescence on the two inflated sides of the lower half of the frons, as well as on the face and genae is much shorter and much less tufted; the vertex is about three times as broad as the ocellar triangle, dull velvety black and with some short erect black hairs; occiput with longish but not dense soft black pubescence; the dark brownish-black palpi are quite as long as or rather longer than half the length of the proboscis, lamellate, being much broader than in the male; antennae with much shorter stiff black pubescence, and the third segment which is remarkably broad (almost twice as broad as in the male) bears short stiff black pubescence on its dorsal side or ridge only.

Thorax with the long black pubescence considerably reduced both in length and in density, being almost imperceptible on the dorsum and consisting of some short (a few may hardly be called longish) soft hairs on the sides of the upper half of the scutum; the golden yellow scaly hairs are entirely lacking (in the only female specimen in my possession) and only a few short iridescent scales are scattered here and there on the disc; pleurae with the pubescence on the mesopleura reduced in length and in quantity but the metapleural almost as in the male.

Wings and legs as in the male.

Abdomen somewhat shining black, as if « greasy », with short and very sparse black pubescence, without any golden yellow scaly hairs and with a few iridescent small scales, very sparsely scattered over the segments; sixth and seventh segments (apparently forming part of the genitalia) with rather more numerous, longer stiff black hairs.

♂ Length : 7.5-8.0 mm.; breadth : 14-15 mm.

♀ Length : 6.5 mm.; breadth : 14 mm.

4 ♂♂, including Bezzî's type and 1 ♀, the type, all captured by me in Mariout (Burg-el-Arab) between the middle to the end of March 1922-27. This species is certainly rare as I have never caught nor seen more than one specimen in one season of the year. All the five specimens were captured whilst hovering over wild flowers (*Chrysanthemum*, *Senecio*,

Achillea, etc., which grow as weeds often more profusely than the crop) in barley fields.

There is no record of this curious and handsome species from any other part of Egypt.

TOXOPHORA

(Meigen, 1803, Illiger's Magaz. f. Ins., II, 270, 58)

SYNONYMY :

Eniconerva Macq. (1840, Dipt. exot., II, 1, 110, 21.

Heniconeura Verr. apud Scudd. (1882, Nomencl. Zool., 159).

TYPE OF THE GENUS :

maculata Rossi (1790), Fauna Etrusca, II, 328, 1569, Tab. IV, f. 11, 14 (*Asilus*) et (1807) Edit. II, 498, 1569 (*Asilus*).

Medium sized (sometimes small) to fairly large black flies, conspicuously spotted with yellowish-white to deep orange coloured scales and hairs, distinguished by the exceedingly developed prothorax which forms a dorsal shield between the mesonotum and the head and which bears strong, long macrochaetae, the wing venation, the very long, rigid fringes of the squamae, the presence of two distinct ocellar bristles and by the long and thin first antennal segment.

Head rather small, rounded; eyes in the male touching for a long distance and consequently leaving a small, short but broad triangular frons above the base of the antennae, which always bears very dense, tufted and elongate scales; in the female the eyes are separated by a distance which is only a little broader than the breadth of the ocellar tubercle; in the male the facets in the neighbourhood of the line of union of the eyes are a little enlarged but these facets are not sharply separated from the smaller ones; face bare, very short and the genae are very narrow owing to the margin of the mouth being very long and broad, so that posteriorly the jowls are also narrow; proboscis moderately long (much shorter than the head including the antennae) and about one and a quarter times the length of the mouth 'margin' (in which it can be withdrawn for three quarters of its length); palpi very long, filiform and apparently consisting of one segment; ocellar tubercle with two strong, distinct bristles directed forward; antennae⁽¹⁷⁾ porrect, closely approximated at the base, with the basal segment

(17) I do not agree with Engel (1937, *loc. cit.*, p. 81) when he states that « the two basal segments bear scales..... ». Moreover, he is in error in stating (*loc. cit.*, p. 82) that in the ♂ of *T. maculata* the first segment of the antenna is « as long as or scarcely longer than the second ». Actually in this species, the first antennal segment in the ♂ is about twice

cylindrical, much longer than the head and usually clothed with scales as well as coarse hairs; second segment more or less cylindrical, about one fourth to half the length of the first, and clothed with minute but coarse stiff hairs laterally and ventrally only, and consequently its dorsal surface appears bare but it possesses a dense shining tomentum which gives it a velvety appearance; occasionally the second segment bears scales on the sides; third segment a little longer than the second, conical, feebly compressed laterally and ending in a more or less short bristle-like tip; the occiput which is a little more inflated in the female than in the male is as a rule, densely clothed with short and long scales, among which is found a few long hairs.

Thorax so much humped, and the head and abdomen each so much bent down that they are almost at right angles to one another; the very strongly developed prothorax bears four to five pairs of bristles, the middle pair bent backwards, the outer three to four pairs bent inwards, the two or three exterior bristles very close together; on the disc of the scutum the chaetotactic bristles seem to be concentrated about the margins; on the anterior margin towards the centre, there are two or three pairs of backwardly directed bristles which may correspond to the *d.c.*; behind the humerus there are two pairs of bristles, one lower (directed upwards and forward) and one upper (directed backwards); furthermore, there are four to six bristles around the wing base (about three pre-alar, and two or three supra-alar) one of which is usually very strong; behind the wing there are two strong bristles (postalar) and there are also two or three pairs (two of which are equally strong) on the postalar calli, all of which are directed backwards; the pubescence is mainly scaly; pleurae with only one bristle on the upper border of the mesopleura (directed upwards), and bearing elongate but closely adpressed, scattered scales; scutellum flat, with the hind border having a straight truncation in the middle, with the disc forming a flattened arch right on to the abdomen, and bearing about eight partly decussating marginal bristles.

Wings relatively short and narrow; the veins $R_2 +_3$ and $R_4 +_5$ are forked and the upper branch of the fork $R_4 X_5$ forms a more or less undulated cross-vein which joins the lower branch of the fork $R_2 +_3$; the distal border of 1st M_2 cell is more or less considerably (in the same species) bent somewhat S-shaped and is provided, sometimes, towards the middle with a more or less short or long (rarely) petiole, which may reach the wing margin; occasionally the petiole may be emitted from near the base of the above men-

as long as the second; in the ♀, on the other hand, the length of the first segment of the antenna is more than twice that of the second. Engel seems to have fallen in, or followed the errors of Paramonow (1925, *Bull. Acad. Sciences Ukraine*, 1, p. 5) in giving false measurements of the antennal segments.

tioned distal border and present inside the 1st M_2 cell; 1st A cell always closed before the wing margin and consequently with a petiole; alula well developed, usually long and narrow; squama with dense, long, rigid cilia; halteres relatively small and delicate.

Legs very stout and short with very bristly tibiae, which, in addition possess two to five long spurs; hind coxae with three white or pale bristles, which are the only whitish bristles on the entire body; hind femora, in the male only have beneath, on the basal half an exterior row of about three very strong and widely separated bristles and another anteriorly situated row of bristles somewhat nearer the base; the middle femora have a similar row of five to eight much shorter bristles; the middle tibiae bear, near the base, one strong bristle (decidedly longer than the numerous other bristles excluding the spurs); all these bristles on the femora are wanting in the female; claws and pulvilli normally developed.

Abdomen tubular and elongate with a blunt apex, only a little longer than the thorax and more or less arched; the bristles are wanting and the pubescence is mainly of a scaly nature; the hypopygium is rather concealed and consists of the somewhat thickened eighth abdominal segment; ovipositor small, concealed, without spines and apparently with one pair of small cerci.

As regards bionomics, Bezzi (1924, *loc. cit.*, p. 129) writes: « The metamorphoses of some species of *Toxophora* has been observed in Europe and North America, and in both continents they have been bred from wasp's nests; such a life-history, it may be added, is already suggested by the yellow and black colours of many species. The general appearance of such forms strongly resembles that of the Hymenopterous genus *Leucaspis*, which has similar habits, and perhaps points to convergence ».

Séguy (1926, *Faune de France*, 13, Dipt. (Brachyc.), p. 220), states that *T. maculata* is a parasite of solitary wasps (*Eumenes*, *Pelopaeus*, and *Odynerus*). Cros (1932, *Bull. Soc. Hist. Nat. Afr. Nord*, 23, p. 67) records a case of parasitisation of *Eumenes pomiformis* Fabr. by *T. maculata*. The larva of the parasite, then very small, was first noticed on June 3rd 1931, when it was seen to be attached transversely to the underside of the body of its host, a little distance behind the anterior extremity. On June 12th the larva appeared full-grown, and had detached itself from the empty skin of the *Eumenes* grub. Pupation took place on June 16th, and the imago emerged on July 1st, at 9.27 p.m., The puparium of *T. maculata* is figured by Séguy (*loc. cit.*, p. 221) and bears on either side of each abdominal segment three long, fine, curved setae. However Cros (*loc. cit.*, p. 72, footnote), states that Séguy's figure does not give a true idea of the arrangement of these setae in life.

Engel (1937, *loc. cit.*, p. 82) gives a key to three Palaearctic species of this genus but according to Austen (1937, *loc. cit.*, p. 76) Paramonow (1933, *Trav. Musée Zool. Kiev*, No. 12, pp. 34-35 (in Ukrainian) and 43-44 (German)) furnishes a more comprehensive key to the Palaearctic representatives of *Toxophora*, totalling seven species, including one variety and one subspecies. This paper by Paramonow I have not seen. Rossi's species which seems to have a very wide distribution varies considerably in the colour of the scales covering the body (from almost pure white to deep orange); moreover the presence or absence of the petiole towards the middle of the S-shaped distal border of 1st M_2 cell, is too insignificant a character, as to be used in distinguishing between species. When studying the rich material collected from almost all parts of Egypt (over 40 of each sex) it is not possible to separate the two species *maculata* Rossi and *epargyra* Herm. Bezzi (1924, *loc. cit.*, p. 129) is in error in making use of the breadth of, and the sparsity of the scales on, the first antennal segment, in his diagnostic table of the species; the error is even greater when using the above artificial characters together with the presence and absence of the petiole towards the middle of the S-shaped distal border of 1st M_2 cell (which he calls the strong appendix of the cross-vein between the discoidal and the second posterior cells). In the large series in my possession this petiole or appendix is represented in different specimens in almost every possible stage of variation, while the other characters of the body (density and colour of scales and pubescence, size of body, etc.) agree with the characters of *maculata* and *epargyra*. The petiole may be very minute, spot-shaped on both wings or on one wing only, or quite long, and in one case, it actually extends all the way to the wing margin on the right wing only, and is entirely wanting on the left wing! Furthermore, the position of the r-m cross-vein is of no assistance as it is not by any means constant. All the previous authors who have studied Rossi's original species and attempted to separate from it Herman's *epargyra* (Bezzi, Paramonow and Engel) have, in my opinion, met with a failure, and owing to the reasons given above, I am obliged to drop Herman's species to the rank of synonymy. Consequently our fauna comprises three distinct species, *maculata* Rossi, *aegyptiaca* nov. sp. and *Leyladea* nov. spec., the former being the Mediterranean type species and has a wide distribution both in the Palaearctic and Ethiopian Regions.

TABLE OF SPECIES

- 1 (4) Abdomen densely clothed with scales which vary from pure white to deep cadmium with a pair of more or less large and conspicuous.

admedian, rounded or oval dark spots on each segment (formed by purplish-black or blackish-brown scales) or with the spots in contact with each other and forming blackish longitudinal stripes. Wings hyaline or more or less tinged brown and with the anterior basal half tinged honey-yellow. Species of larger size with broad robust body.

- 2 (3) Scales on first antennal segment all, or almost all whitish. Dark, admedian spots on abdominal segments formed by blackish scales possessing a distinct brown or bluish-brown tinge and the pair of spots on one segment never joining the spots on the consequent segment so as to form longitudinal stripes. **maculata ROSSI**
- 3 (2) Scales on first antennal segment purplish-black. Dark, admedian spots on abdominal segments formed by blackish scales possessing a distinct purple tinge, the spots being larger, showing a strong tendency to form, and often forming, longitudinal stripes. **aegyptiaca NOV. SPEC.**
- 4 (1) Abdomen clothed with black scales (possessing a distinct bluish-violet tinge) with a small oval pale yellowish spot on the middle of the hind border of each segment (forming a mid-dorsal row) and an elongate-quadrate, oblique, silvery white spot, on each side of all the segments, the two uppermost of which (on the first and second segments) joining each other and forming one much longer spot. Wings distinctly (but not deeply) and uniformly infuscated. Small species with narrow, slender body. **Leyladea NOV. SPEC.**

Toxophora aegyptiaca NOV. SPEC.

DIAGNOSIS :

A comparatively large, broad, robust species, not unlike *maculata* in general appearance but distinguished from it by its more prevalent black colour, the blackish-purple scales on the two first antennal segments, the weak, although always distinct, infuscation of the wings and by the blackish-purple scales on the abdomen usually forming two broad, admedian longitudinal stripes which are occasionally interrupted by pale coloured scales on the extreme lower border of the segments.

DESCRIPTION :

♂ : *Head* (Pl. XVII, figs. 273 and 274) with the tomentum (on the frons, face and genae) whitish as in *maculata* but more frequently of a yellowish or pale brownish (somewhat dirty) colour; the tufted, elongated scales on the frons and around the base of the antennae are very much as in

maculata but of a less pure silvery white colour; the upper part (one-fourth to one-third) of the occiput blackish, almost devoid of scales, and on the rest of the back of the head the scales and the longish coarse pubescence (above) is of a darker, more dirty brownish-yellow or greyish-yellow colour than in *maculata*; antennae with all the scales as well as the pubescence on the basal segment blackish-purple; second segment quite half the length of the first and possessing blackish-purple scales and black pubescence on the sides and beneath; third segment about as long as the second and bearing minute, sparse black pubescence; proboscis and palpi blackish, the latter with sparse, soft blackish-brown hairs some of which are longish and erect.

Thorax with the light coloured scales varying from apricot yellow to pale cream-buff and present at most on the anterior half and lateral margins of the disc, thus leaving the lower half of the disc bare and black (as if the scales were rubbed off); when examined from the side (with the light coming from in front) this black posterior portion of the disc is seen to possess some scattered black scales which have a distinct purple tinge; in fresh, well preserved specimens there is also a yellow median stripe which never extends beyond the middle of the dorsum, although it is present on the scutellum; the usual, fairly long, fine and tufted pubescence on the margins of the anterior half of the scutum also varies from dirty greyish-brown to pale whitish-grey (but never pure white as it usually is in *maculata*); scutellum densely covered with scales which are yellow all around the margin and purplish-black on the disc except on the yellow median stripe (composed of yellow scales and which appears to be a prolongation of the yellow median stripe on the anterior half of the scutum); pleurae concolorous blackish-grey with the scattered, very sparse scales and hairs whitish.

Wings (Pl. XVII, fig. 275) always more or less feebly but distinctly tinged brown and with the r-m cross-vein which is usually placed well after the middle of 1st M_2 cell, as well as the rather undulated cross-vein-like upper branch of the fork $R_4 + 5$, dark shaded or infuscated; the distal border of 1st M_2 cell is very variable in its undulation and may be provided with a short petiole emitted near the base and inside 1st M_2 cell; squamae with a pale yellow margin and with a dense, long, white ciliae-like fringe; halteres with the knob varying from pale ivory-yellow (almost white) to dark buff-yellow and with the stalk always darker.

Legs black except the apical third or fourth of the coxae and the trochanters brownish-yellow; front and middle coxae with white scales on the anterior side; hind coxae with more numerous dense white scales and with the usual three yellowish bristles and some shorter pale hairs; middle trochanter with about three bristles near the apex but not very close to each

other; hind femora with an anteroventral row of two or three strong, widely separated bristles on the basal half and another posteroventral bristle near the base; middle femora also with a posteroventral row of about seven much shorter bristles; all the femora on the ventral and posterior sides except the tip and all the tibiae on the upper side with dense white or yellow scales except the hind tibiae whose scales, beyond the basal fourth or third, are light purplish-grey in colour; claws black; pulvilli pale yellowish-grey.

Abdomen (Pl. XVII, fig. 276) densely covered with scales which are purplish-black along two broad, admedian longitudinal stripes and yellow along three stripes alternating with the preceding; these three yellow stripes are almost of equal breadth but the middle one is narrower above and often much broader on the apical half of the abdomen owing to the yellow scales showing a strong tendency to spread outwards, particularly on the upper border of the segments and joining the yellow lateral stripes; often the purplish-black scales form two parallel rows of isolated spots, the upper admedian pair of which is much longer than the others owing to the spots of the first and second segments joining each other, while the other four or five pairs on the third to sixth or seventh segments respectively are subquadrate or somewhat rounded-oval and gradually become smaller towards the apex of the abdomen; the colour of the yellow scales varies considerably from very pale whitish-yellow to light cadmium, the median stripe being always more or less of a deeper yellow and the upper fourth to half (or more) of the lateral stripes are always whitish; occasionally also, even in the light cadmium coloured specimens, in addition to the white scales of the upper border of the side stripes (from the centre of which, arise some long, outstanding whitish hairs and which constitute the pubescence on the dorsum) the scales on the last segment (immediately above the genitalia) may be white; venter (Pl. XVII, fig. 277) clothed with scales which are usually all white, but often those on the middle third of the sternites (which are less dense and form a more or less conspicuous median longitudinal band) are pure white and the denser scales on the outer third are more or less pale yellowish with blackish purple scales forming one rounded oval spot near the outer margin of each of the second to seventh segments; the pubescence on the venter consists of sparse but long, fine, radiating white hairs forming a row near the lower border and on the middle third of the segments; genitalia blackish-chestnut, somewhat concealed, not swollen and possessing white or pale yellowish scales about the base as well as some longish, yellow bristly hairs.

♀ : Very much like the male but the abdomen is less tubular, being often more parallel-sided; frons shining black, bare, and clothed with two dense tufts of long argenteous scales, one on each side near

the base of the antennae, and with similar but much shorter ones in between; the pubescence on the thorax (on the pronotum and the sides of the mesonotum) is, as a rule much paler than in the male, being almost pure white; legs as in the male and with the normal absence of bristles on the femora; ovipositor with some short erect yellowish hairs.

♂, ♀ : Length of body (including antennae) : 9-13 mm.; breadth (with wings expanded) : 11-13.5 mm.

Although *T. aegyptiaca* is closely allied to *maculata*, the distinctly purplish-tinge of the dark scales evidently indicates an affinity with several Ethiopian species such as *maculipennis* Karsch, *punctipennis* Bez. and *diploptera* Speiser.

I have 20 males and 8 females (including the types) showing a wide distribution South of Cairo (Wadi Hoff, W. Garawy, W. Morrah, W. Ibtadi, W. Rigm el-Sheikh Salama, W. Dar el-Maskhara, W. Rishrash : 20.III-27.IX), in South Sinai (Wadi El-Elwa, Bir Islah, Wadi El-Jega : 4.IV-30.IX), and as far south as the Anglo-Egyptian Sudan Frontier (Mersa Halaib, Red Sea coast : 21.I-30.IV).

Toxophora Leyladea NOV. SPEC.

DIAGNOSIS :

A small, slender, narrow bodied species, at once distinguished by its prevalent black colour (which has a distinct bluish-violet tinge), the characteristic spots on the abdomen formed by pale yellow (in the centre) and silvery white (on the sides) scales, and by the uniform, but not deep, infuscation of the wings.

DESCRIPTION :

♂ : *Head* (Pl. XVII, figs. 278 and 279) shining black with silvery white tomentum on the very narrow genae only, and so thin on the face that it leaves it blackish; the tuft of elongate scales, one on each side of the frons (on the sides of the base of the antennae) is small, narrow and argenteous and between them (on the centre of the minute frons), there are a few scattered, short, brownish scales; the pubescence on the black occiput consists of a few scattered argenteous scales (which are more numerous and more even below) and of the usual longish, erect, somewhat coarse hairs all white; antennae black with the basal segment at least twice the length of the second, with most of the scales black (and occasionally a whitish-grey scale interspersed here and there) and with black pubescence; second segment almost as long as the third, without scales and with black pubescence on the sides; third segment somewhat longer than the second, conical, very gradually tapering to the apex which is hardly acute and with short black pubescence

on the sides; proboscis and palpi blackish, the latter filiform, a little longer than half the length of the former and possessing a few scattered erect blackish hairs dorsally.

Thorax black with the dorsum bearing black scales which possess a dark bluish-purple tinge and some scattered white scales but which do not form any design; the pubescence on the pronotum and sides of the upper half is short, hardly dense and whitish; chaetotactic bristles normal; scutellum clothed with similar scales as the thorax but the greyish-white ones, in addition to being more numerous about the margin are apparently somewhat concentrated on the middle fourth and thus suggesting a continuation of a median paler longitudinal stripe which should extend from the dorsum of the thorax; moreover the scales about the middle of the lower margin are distinctly pale yellowish; pleurae greyish-black with the usual scattered scales pure white.

Wings distinctly (but not deeply) and uniformly infuscated; cross-vein-like upper branch of the fork $R_4 + 5$ not at all undulated; r-m cross-vein placed on or just after the middle of the long 1st M_2 cell whose distal border is deeply undulated as usual but without any petiole; squamae with a pale yellow margin and pure white ciliae-like fringe; halteres with the knob ivory yellow to cream colour but obscure brownish-black about the base and the stalk obscure brownish-black but pale brown towards the tip.

Legs black except the apex of the coxae and the trochanters obscure reddish-brown; front and middle coxae with scattered white scales; hind coxae with more numerous white scales and with the three usual whitish bristles; middle trochanter with one short ventral bristle towards the centre; hind femora with only one strong bristle on the anteroventral side (in the position of the first bristle of the usual row of bristles on the basal half) near the base; middle femora with a posteroventral row of four rather strong, widely separated bristles, also on the basal half; the adpressed scales on the legs consist of argenteous and of blackish scales possessing an obscure bluish-violet tinge; the silvery-white scales are found on the trochanters, on the ventral and posterior sides of the fore and hind femora except the tips, on the posterior side and basal third of the ventral side of the middle femora, on the outer side of the apical half and about the apex of the front tibiae, and on the inner side of the basal two-thirds of the middle tibiae; among the blackish scales (with bluish-violet tinge) covering the remaining portions of the legs there are numerous outstanding grey scales, particularly on the front tibiae; the minute pubescence on the legs is blackish; claws black; pulvilli brownish-grey.

Abdomen (Pl. XVII, fig. 280) slender, narrow, densely covered with blackish scales possessing a distinct bluish-violet sheen and with pale yellow-

ish as well as pure white scales which form a contrasting design as follows : the pale yellowish (or yellowish-white) scales form a mid-dorsal row of small rounded oval spots except on the basal segments where they are stripe-shaped, extending on the middle of the basal segment and ending on the middle of the upper third of the second segment ; on the subsequent segments there are five pale yellowish spots, the first of which is the smallest, situated on the upper margin of the third segment and its upper border extending on the lower margin of the second segment ; the subsequent three spots are situated each, on the third and fourth, the fourth and fifth and the fifth and sixth segments respectively ; on this latter segment however the pale yellowish scales on the middle of the upper margin (which should form the lower half of the fourth rounded-oval, mid-dorsal spot) are almost absent and the pale yellowish scales on the lower margin extend laterally and join almost the white scales on the sides ; the white scales form large, broad-elongate spots on the lateral margins of the segments as follows : on the two first segments, on either side, the spots join one another and form an uninterrupted white stripe covering the entire outer fifth or so of the segments and the inner margins of the stripes are almost parallel (not at all oblique) ; on the third to sixth segments the white spots are elongate-sub-quadrangle and oblique, the spot on the third segment being the broadest and the one on the sixth segment much narrower, and the scales forming its lower third or so expand laterally (on both sides) on the lower margin of the segment ; the pubescence on the dorsum consists of about five longish ; erect, white bristly hairs towards the middle of the sides of the basal segment ; venter (Pl. XVII, fig. 281) with dense black and white (some pale yellowish) scales which form together a very characteristic design as shown in the figure ; the pale yellowish scales are more numerous on the three apical segments and the outer margins of the admedian triangular white markings (formed by white scales) join the outer lower angles of the white side spots of the dorsum ; the pubescence consists of sparse long, soft, pendent white hairs about the middle of the first to fourth sternites ; hypopygium not bulbous, reddish-chestnut about the apex, with dense yellowish scales over the base as well as short pale yellow hairs all over.

♀ : Very much like the male but the abdomen is distinctly less slender, being somewhat plumper and more conical ; frons shining black, bare and bearing two tufts of small, short white scales, one on each side near the base of the antennae and the comparatively broad space in between is quite bare and obscure, dull brownish-black ; thorax, wings and legs as in the male and in the latter the bristles on the femora are absent as usual. Abdomen with the scales forming the mid-dorsal row of spots of a distinctly deeper yellow colour than in the male ; eighth segment (apparently forming

base of ovipositor) with a fringe of minute but stiff yellowish hairs on the extreme apical margin and with some longer soft hairs on the ovipositor.

♂, ♀ : Length of body (including antennae) : 7.3-7.8 mm.; breadth (with wings expanded) : 7.0-7.5 mm.

Only two specimens are known, one male and one female (the types) of this most interesting species both originating from Gebel Elba (South-Eastern desert). The female was captured by myself in Wadi Edeib in January 1933 and the male was collected by my assistant, Mohamed Tewfik Effendi also in Wadi Edeib but five years later, on February 26th 1938. *T. Leyladea* decidedly shows Ethiopian affinities.

Toxophora maculata ROSSI

Rossi (1790), Faun. Etrusca, II, 328, 1569, IV, f. 11, 14 (*Asilus*) et (1807) Edit. II., 498, 1569 (*Asilus*); Fabricius (1794), Ent. syst., IV, 383, 33 (*Asilus*); Meigen (1804), Klass. I, 273, 1, XIII, g. 23-26; Fabricius (1805), Syst. Antl., 169, 24 (*Dasypogon*); Wiedeman (1817), Zool., Mag., I, 2, 8; Meigen (1820), Syst. Besch., II, 237, 1, XIX, f. 15; Macquart (1834), Suite à Buffon, I, 387, IX, f. 16 et (1845), Dipt. exot., Suppl. I, 246; Blanchard (1840), Hist. Nat. Ins., III, 586; Gimm. (1847), Bull. Soc. Imp. Nat. Moscou, XX, 3, 223, 1; Walker (1849), List. Dipt. Brit. Mus., II, 297; Macquart (1849), in Lucas Expl. Sc. Algérie, Zool., III, 456, 123, IV, f. 9; Loew (1860), Oefv. Vet. Acad. Förhandl., XVII, 86, 22, et (1860), Dipterenf. Südafrik., 198, 1; Schiner (1862), Faun. Austr., I, 69; Karsch (1887), Entom. Nachricht., XIII, 24, 1; Becker (1906), Zeitschr. f. Hymen. u. Dipt., H, 3, 158, 96; Becker et Stein (1913), Annuaire Mus. Zool. Acad. Imp. Sc. St-Petersbg., XVII, 1912, 580, 115; Bezzi (1921), Annals South Afr. Mus., XVIII, pt. I, 105 et (1922), Broteria, Ser. Zool., XX, 3, 79 (16), 31, et (1924), Bombyl. Ethiop. Region, 129, 130, et (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 197, 7, 1; Paramonow (1925), Bull. Acad. Sciences Ukraine, I, 43-48 (1-6); Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 82, 84, IV, f. 11, 14; Austen (1937), Bombyl. of Palestine, 76, 59.

SYNONYMY :

epargyra Herm. (1907), Zeitschr. f. Hymen. u. Dipt., VII, 201; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 197, 7, 2; Paramonow (1925), Bull. Acad. Sciences Ukraine, I, 43-48 (1-6); Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 82.

? *fasciculata* Vill. (1789), Entom. Linn., III, 603, 46 (*Asilus*).

DESCRIPTION :

♂ : *Head* (Pl. XVII, figs. 282 and 283) with a tomentum which varies from pure silvery white to a pale yellowish colour; the elongated scales on the frons and around the base of the antennae are very dense, tufted, argenteous, and fill up the entire frons, although the scales on the side of each antenna are slightly directed outwards and the tuft appears to have been brushed and parted in the middle; occiput densely covered with scales, most of which are pure silvery white but on the upper third many of the scales are usually yellow or yellowish; the erect, very coarse pubescence on the back of the head is whitish, although the coarsest hairs about the centre may often be yellowish; the small ocellar tubercle also bears a few whitish scales, proboscis black; palpi blackish, about half the length of the proboscis, feebly and very gradually broadening towards the base (where they are quite twice as broad as at the tip) and clothed with very short dark reddish-brown hairs, on the sides as well as with a few scattered much longer blackish hairs; antennae with the basal segment quite two and a half to three times the length of the second segment and with the scales covering the dorsal surface and sides mostly white with a few brownish or blackish ones (mainly present towards the apex); the amount (or number) of these white scales varies remarkably, from a few (scattered over the dorsal surface) to very numerous (completely covering the sides and the ventral surface, in addition to the dorsum); the usual very short, stiff pubescence on the sides of the first and second segments is black; third segment elongate conical, very acute at the tip, distinctly longer than the second segment and with short black pubescence on the sides.

Thorax black, covered with more or less dark apricot yellow or light cadmium coloured scales on the disc but on the lateral margins they are almost always white; the usual, fairly long and tufted pubescence on the front border and on the margins of the anterior half is pure white (very rarely, at most pale yellowish). scutellum densely and uniformly covered with light cadmium scales which are less frequently (than those about the central third of the scutum) rubbed off (owing to its low-lying and protected position; thoracic and scutellar chaetotactic bristles strong, black and normal; pleurae concolorous greyish-black with the scattered scales on the mesopleurae and the dense and tufted scales on the hypopleura, all pure white.

Wings (Pl. XVII, figs. 284-290) varying from entirely hyaline to more or less deeply tinged light brown and with the anterior basal half tinged honey yellow (the latter condition being less rare in the female); r-m cross-vein placed on, just after or a little after the middle of 1st M_2 cell; the cross-vein-like upper branch of the fork R_4+5 feebly undulated and without any trace of shading or infuscation; the distal border of 1st M_2 cell is re-

markedly variable in its undulation and may be provided with a more or less short petiole (or even two) emitted towards the middle and inside the 2nd M_2 cell (Pl. XVII, figs. 284-285; Pl. XVIII, figs. 286-290); frequently the petiole is more or less long, sometimes present in one wing only (and totally absent in the other wing) and in one instance, in the left wing only the petiole is prolonged to the margin of the wing while the right wing bears no trace of a petiole; squamae with a pale yellow margin and dense, long, white ciliae-like fringe; halteres with the knob cream-buff or chamois and the stalk darker (brownish) but sometimes the knob may be cream colour, darker about the base and the stem dark chamois.

Legs black but the extreme apex of the coxae and the trochanters obscure blackish-brown; front and middle coxae with pure white scales on the anterior side; hind coxae with more numerous white scales and with the usual three whitish or very pale yellowish bristles; middle trochanter with a cluster of about five preapical bristles; hind femora with an exterior row of two or three widely separated bristles on the basal half and another interior weaker bristle, near the base; middle femora with the posteroventral row of weaker bristles reduced to about four very short bristles and with one anteroventral bristle at a short distance from the base; all the femora on the ventral and posterior sides except the tips and all the tibiae on the upper side except the apical two-thirds of the posterior tibiae with dense pure silvery white scales; the scales on the dorsal side of the hind tibiae (except the apical fourth to third which is clothed with pure white to pale yellowish scales) are of an ill-defined obscure brownish-grey colour, and occasionally some of the scales on the anterodorsal side of the basal third of the front tibiae are of that same colour; frequently all the white scales on the dorsal side of the tibiae are of a more or less deep and distinct yellowish colour; claws black; pulvilli pale yellowish-grey.

Abdomen (Pl. XVIII, figs. 291-293) densely (in fresh, unrubbed specimens) covered with scales which vary from almost pure white or pale yellowish to deep cadmium and with five pairs of dark dorsal rounded-oval or quadrate spots also formed by scales but which are of an ill-defined brownish-black to bluish-black colour; usually, even in the darkest forms the scales on the median third of the dorsum only are deep yellow and their colour gradually fades away outwards and sometimes apically as well, so that the lateral margins of the segments are white and often the two or three apical segments are also whitish; as a rule, the pairs of dark spots are conspicuous and with well defined margins in the darker, deeper yellow (cadmium) specimens, and may be described as follows: basal segment usually without dark coloured scales forming spots but sometimes with a pair of broad-conical, slightly oblique dark spots which are more widely se-

parated than the spots below, and whose lower border touches the segments lower margin and their upper border, which is much narrower, situated towards the middle of the segments outer thirds; the second to sixth segments possess each one pair of admedian dark spots, the first pair (on the second segment) being the largest and the spots becoming gradually smaller towards the apex so that the pair on the sixth segment is very small; the shape of these spots (as well as their size) varies from rounded-oval to quadrate and their upper border touches the segments upper margin, while their lower borders are situated towards the middle of the segments outer thirds; in the paler yellowish or whitish specimens the dark spots usually are with very ill-defined margins and sometimes they may be inexistant and the segments are blackish with more or less broadly whitish margins (upper, lower and side); occasionally also the dark spots are broad-triangular in shape with ill-defined margins, with the base of the triangle close to the upper border of the segments and the apex near the lower border; the pubescence on the abdomen consists of a few longish outstanding white hairs on the sides of the basal segment; venter clothed with white scales which are sparser at the base, towards the centre, through which may be seen a reddish-brown ground colour, and dense, and evenly arranged along the lower border of the sternites thus forming a kind of fringe; sometimes the scales are distinctly yellowish in colour, particularly those covering the outer thirds of the venter; hypopygium more or less swollen, more or less dark reddish-brown and clothed with dense whitish scales about the base as well as with short white and longer yellowish stiff hairs all over.

♀ : Very much like the male but in the dark forms the yellow colour is decidedly deeper and extends on almost the entire dorsum of the abdomen and of the thorax including the pubescence, as well as on the entire back of the head (including also the pubescence); in the deeply yellow coloured forms also the wings are conspicuously infuscated or more or less deeply tinged light brown and the anterior basal half is tinged honey-yellow. Frons (Pl. XVIII, figs. 294 and 295) shining black, bare and bearing two dense tufts of long argenteous scales which are yellow in the darker form and owing to the broader frons (than in the male) the partition between the two tufts is usually more pronounced; antennae with the relative lengths of the segments unlike those of the male, that of the basal segment being from three to four times the length of the second, and the second segment being from two to three times as long as the third; these proportions, although usual, are by no means constant and I have seen specimens in which the basal segment is hardly twice the length of the second and the latter quite as long as the third segment.

Thorax, in the darker forms (in which all the scales and pubescence

are deep cadmium) with a narrow median longitudinal line (formed by cadmium coloured scales) extending from the upper to the lower margins of the disc. *caudatus*.

Legs with the normal absence of bristles on the femora and on the middle trochanters.

Abdomen (Pl. XVIII, figs. 296 and 297) usually with six to seven pairs of dark spots forming two admedian longitudinal rows but these are also extremely variable as in the male, i.e. they may be very ill-defined or totally absent and the segments may be blackish (or dark reddish-brown) with more or less broadly whitish or yellowish margins or the entire abdomen may be densely covered with pale coloured scales (yellowish on the basal half or more, and whitish about the apical third) and with dark ill-defined markings in the position of the dark spots but only on the second and third segments; ovipositor brownish-yellow to reddish-brown and bearing very short and some longer erect yellowish hairs.

♂, ♀ : Length of body (including antennae) : 7.0-12.3 mm.; breadth (with wings expanded) : 6.7-12.0 mm.

T. maculata is by far the commonest species of the genus in Egypt; I have specimens from almost every locality in Egypt, from extreme North to as far South as the Soudan frontier. I have captured it in Northern Sinai (Ein Gedeirat), near Alexandria, Ismailia, Abu Soltan, Kassassine, the Mariut District (from Dekhela to Hammam), in the neighbourhood of Cairo (Borgash, Mansouria, Kafr Hakim, Kafr el-Dems), Mazghouna, Ein Soukhna, and Ghoubbet el-Bouss (60 Kilometres South of Suez), in most of the Wadies South of Helouan (W. Morrah, W. Hoff, W. Rishrash, W. Garawi and W. Ibtadi), Wadi Digla, and the Oases of Kharga, Dakhla, Siwa, and in Gebel Elba. My records extend from the beginning of February to the end of August (1921-42).

The remarkable variations exhibited by the large series, I have been able to study (over 50 specimens of each sex) have compelled me to drop Hermann's species *epargyra* to the rank of synonymy. It must also be pointed out that none of my large series originating from any one particular locality, exhibit constant varietal characters, for instance, out of a series of more than ten specimens of each sex captured at Ein Gedeirat, eight males and five females are pale coloured and the abdomen shows no trace of the rows of dark spots but ill-defined dark transverse bands instead, and the few other specimens of the series from the same locality are darker coloured and exhibit the usual characteristic design on the abdomen. Furthermore, although the series originating from typically desert localities (the Wadies South of Cairo and Helouan) show a general reduction in size (my smallest measure of 7.0 x 6.7 mm. is taken from a specimen captured in Wadi Ga-

rawi), as well as a general pale (whitish) colouration, yet, the two darkest specimens from Egypt (possessing all the scales and pubescence deep cadmium colour, the basal segment of the antennae hardly twice as long as the second, and the latter as long as the third segment, and the wings distinctly infuscated with the anterior basal half tinged honey-yellow) originate from the same localities (Wadi Garawi and Wadi Morrah).

USIA

(Latreille, 1802, Hist. Nat. Crust. et Ins. (1794), III, 430, et (1804), Dict. Hist. Nat. Deterv., XXIV, 190, 523, et (1804), Hist. Nat. Crust. et Ins., XIV, 300).

SYNONYMY :

Volucella Fabr. (1794) (*nec* Geoffr.), Ent. syst., IV, 412, et (1805) Syst. Antl., 114, 25.

Volucella Meig. (1804), Klass., I, 194, XLVI.

TYPE OF THE GENUS :

floreola Fabr. (1794).

Small to very small (often minute) flies with broad thorax and abdomen, distinguished by the wing venation in which the arms of the fork $R_4 + R_5$ diverge very feebly towards the wing margin and 1st A cell always closed before the margin.

Head as broad as, or occasionally only a little narrower than the thorax; with the exception of a single species (found so far in Egypt) the eyes in the male are holoptic⁽¹⁸⁾, but widely separated in the female, and the facets of the upper half are larger than those of the lower half; face almost inexistant as the mouth opening is anteriorly directed and reaches dorsally (above) the base of the antennae; proboscis from comparatively short (shorter than the length of the head) to very long (as long as the length of the entire body), somewhat broader and flattened towards the base and usually more or less arched dorsally; the apparently unisegmented palpi are short, narrow and bear sparse, very short hairs; occiput usually less inflated above in the male, and possessing an oval callosity on either side of the median furrow

⁽¹⁸⁾ My above definition is contrary to Engel's statement (1937, *loc. cit.*, pp. 61-62) who writes « in the majority of the species the frons is broad in both sexes ». I feel confident that if, in all the Palaearctic species described and discussed in Engel's list, both sexes are known and particularly, if it could be definitely established to which particular species all the males belonged, my colleague would alter his statement. My argument is supported by the certain synonymy of *ornata* Eng. (♂) with *tomentosa* Eng. (♀) which were captured by me in copula.

(designated by Engel as the occipital callosities); antennae relatively short with the first segment about as long as, or slightly longer than the short second segment and the third segment from sausage shaped to somewhat conical but not pointed at the apex; under higher magnification the apical portion of the third segment shows a pre-apical dorsolateral pit possessing hairs, as well as a short rod.

Thorax with the mesonotum weakly humped and a scutellum which may occasionally be pitted or transversely wrinkled; a characteristic pattern is often found on the scutum (consisting of dark, more or less broad longitudinal stripes) which, together with the colour of the paler tomentum are often quite different in both sexes, in fact so different in some species that both sexes may easily be mistaken for two distinct species; the length, density and general colour of the pubescence is very variable and as a rule in the species which possess a longer and more dense pubescence, the points of insertion of the hairs are deeply pitted and conspicuous; pleurae almost bare except for some hairs which are usually found on the upper part of the mesopleura and the metapleura are always bare.

Wings hyaline or with a characteristic more or less deep dusky or brownish tinge and the costa is strong and follows the margin all the way to the tip of cell 1st A; this latter cell is always closed at some distance from or close to the margin (and consequently with a longish to short petiole); the arms of the fork of the veins $R_4 + R_5$ are rather long and are only weakly divergent at their tips; the m cross-vein is usually straight and normal but it may be unusually undulated; the r-m cross-vein is placed usually well before the middle of the 1st M_2 cell, but its position is not constant and, in my opinion, does not afford a reliable distinctive character; squamulae always with a fringe but this latter may be extremely sparse, short and insignificant.

Legs comparatively short, with the femora usually robust and a very short adpressed pubescence which is much longer occasionally on the femora and tibiae; pulvilli present.

Abdomen broad oval, plump and somewhat dorsoventrally flattened with the usual number of segments (seven visible), and often with the lower border of the tergites and sternites more or less broadly pale or yellowish and this gives the abdomen a more or less conspicuously banded appearance; the pubescence always corresponds (in length, density, etc.) somewhat with that of the thorax and in the entirely black species the points of insertion of the hairs is characteristically pitted. Male hypopygium usually large, bulbous and often directed perpendicularly downwards; it consists of two lamellae, a dorsal, bipartite (pair) which is apparently, sometimes segmented

at the apex, and a ventral, bilobed (fused) pair whose upper (dorsal) margin is emarginate and thus forming one to several pairs of more or less blunt teeth; between the ventral lamella there is a pair of hooks but which are not visible in all the species; the usually hidden penis occupies a central position between, and in front of, the hooks. Ovipositor without spines.

As regards the bionomics and the early stages of *Usia*, our knowledge appears to be confined to a short description by Xambou (Mœurs et Métamorphoses de l'*Usia atrata* Fabr.: Le Naturaliste, 2e Ser., No. 275, pp. 189-190, 1898). The larva, measuring 10 mm. in length was found at the end of October on a slope of a path in the neighbourhood of the nest of an ant, *Cataglyphis cursor* Fonsc. upon the individuals of which the larva had apparently been feeding. Simultaneously pupae of *Usia* were found at a moderate depth in the soil under a sort of protective covering, the walls of which were composed of earth and « tissue ».

The adults are good hoverers and I have captured most of our smaller species hovering over and feeding in the flowers of several of our desert *Compositae*, such as *Asteriscus*, *Sonchus*, *Centaurea*, *Senecio*, *Calendula*, *Launea*, *Picris* and as well as on *Zilla spinosa*.

The genus *Usia* is one of the very characteristic Mediterranean genera which is well represented in North Africa and which appears to be absolutely wanting south of the Sahara. The addition of the nine new species described below is a valuable contribution towards our knowledge of the distribution of the members of the genus. Several of these are recorded from the extreme south of Egypt and consequently belong to a fauna which is far more typically Ethiopian than Palaearctic.

The holoptic eyes in the male appears to me to be an important general character of the genus in which, the single representative (*ignorata* Beck.) forms an exception. It is unfortunate that in three of the new species the male is unknown but I have strong reasons to presume that they might possess holoptic eyes.

TABLE OF SPECIES

- 1 (2) Body entirely shining black, with black pubescence; scutellum unusually broad and short, transversely wrinkled and with a regular, rounded (not at all triangular) margin; eyes in the male separated
..... **ignorata BECK.**
- 2 (1) Body never entirely shining black; scutellum not transversely wrinkled and of the usual triangular shape; eyes in the male holoptic.
- 3 (4) Entire body, legs and wing-venation yellow
..... **lutescens BEZ. and minor NOV. VAR.**

- 4 (3) Body and legs never entirely yellow.
- 5 (6) Pubescence on frons and genae longish, erect and tufted in both sexes; abdomen dull black with sharply defined yellow bands on lower border of segments **aurata FABR.**
- 6 (5) Pubescence on frons and genae always practically inexistant in both sexes; abdomen otherwise coloured but if dull black, the yellow bands on lower border of segments are absent.
- 7 (8) Pubescence on thorax and abdomen longish, rather dense and somewhat woolly in the male and a little shorter and less dense in the female; male with uniformly dull black abdomen, female grey or brownish-grey (body) **ornata ENG.**
- 8 (7) Pubescence on thorax and abdomen short or very short and inconspicuous in both sexes; sexual dimorphism in colour of body not highly pronounced.
- 9 (10) Entire body (including head) bearing a rich deep olive-buff coloured tomentum **deserticola NOV. SPEC.**
- 10 (9) Entire body (including head) bearing a tomentum which is usually white, brown or otherwise coloured but never olive-buff.
- 11 (12) Legs of a uniform pale reddish-yellow colour, at most with the tarsi obscured **flavipes NOV. SPEC.**
- 12 (11) Legs not of a uniform colour throughout.
- 13 (14) Legs brownish-black with the knees of the front and middle legs, as well as the apical half (or more) of the middle femora light cream-buff **bicolor NOV. SPEC.**
- 14 (13) Legs more or less dark brownish-black to blackish with the knees only more or less extensively reddish-yellow to brownish-red (or darker).
- 15 (16) m cross-vein unusually undulated, not at all straight; abdomen dark brownish-olive with more or less broad and more or less dark chamois bands on lower border of segments; comparatively large species (7 × 9 mm.) **inornata ENG.**
- 16 (15) m cross-vein straight or only very feebly curved outwardly towards the middle; abdomen otherwise coloured; small to very small species (2.8 × 3.3 mm. to 5.3 × 6 mm.) **Tewfiki NOV. SPEC.**
- 17 (20) Knob of halteres concolorous, without a dark spot.
- 18 (19) Head and thorax densely greyish-white tomented (including all the calli; in both sexes); abdomen with narrow very light buff to pale cream colour transverse bands on lower border of segments **Tewfiki NOV. SPEC.**
- 19 (18) Thorax of male iridescent golden-bronze, much less iridescent and blackish in the female but the postalar calli in the latter are always

- yellow (sometimes the humeral and prealar calli as well as the scutellum are yellowish); abdomen with more or less broad cream to chamois transverse bands on lower border of segments **minusculus NOV. SPEC.**
- 20 (17) Knob of halteres (usually in the male only) with a conspicuous brown to blackish spot on the outer side.
- 21 (22) Thorax uniformly pale brownish-grey tomented; abdomen dull brownish-black with olive-ochre transverse bands on lower border of segments **grisea NOV. SPEC.**
- 22 (21) Thorax blackish with grey sparse, thin, white tomentum, at most on the anterior half; abdomen with more or less broad transverse bands on lower border of segments cream-buff.
- 23 (24) Transverse cream-buff bands on lower border of abdominal segments rather broad; legs blackish with the reddish-yellow or yellowish-red colour of the knees fairly extensive and apparent **elbae NOV. SPEC.**
- 24 (23) Transverse cream-buff bands on lower border of abdominal segments very narrow; legs black with the knees obscure brownish-red and not at all apparent **parvula NOV. SPEC.**

***Usia aurata* F.**

Fabricius (1794), Ent. syst., VI, 413, 2 (*Voluccella*) Coqueb. (1804), III, Icon., 86, XX, f.8 (*Voluccella*); Meigen (1805), Klass., I, 195 b (*Voluccella*); Fabricius (1805), Syst. Ant., 114, 3 (*Voluccella*); Latreille (1809), Gen. Crust. Ins., IV, 315; Meigen (1820), Syst. Besch., II, 227, 4, et (1830), VI, 328; Macquart (1834), Suit. à Buff., I, 384, 6, et (1940), Dipt. éxot., II, 1, 106, 8, VIII, f.6; Loew (1846), Linn. entom., I, 418; Bezzi (1925), Bull. Soc. Roy. Ent. Egypte (1924), 179, 181; Engel (1937) in Lindner: Flieg. Pal. Region., 25, Bombyl., 64, 69, f.25; Austen (1937), Bombyl. of Palestine, 54, 55, 56.

SYNONYMY :

grata Lw. (1856), Rosenh. Thier. Andal., 380; Engel (1937), in Lindner: Flieg. Pal. Region., 25, Bombyl., 64, 72.

taeniolata A. Costa (1883), Atti Accad. Napoli, 1883, 103.

DIAGNOSIS :

Avellaneous to whitish-pearl grey tomented species with velvety dull black thoracic stripes and dull black abdominal tergites bearing sharply defined narrow yellow bands, at once distinguished by the faintly but distinctly dusky tinge of the wings, the long, erect yellowish pubescence on

the thorax and abdomen and by the longish erect and tufted hairs on the frons and genae.

DESCRIPTION :

♂ : *Head* (Pl. XIX, figs. 298 and 299) covered with a tomentum which varies in colour from avellaneous to almost pure white; the holoptic eyes touch for a distance which is about equal to the lower half of the frons and the latter is clothed with long, erect and rather tufted black hairs which continue in almost equal length and density over the rather broad cheeks but below the head the hairs are dense, long, pendent and whitish; ocellar tubercle blackish, dull and bearing a tuft of longish erect black hairs; occiput with long erect black hairs above and on the sides (behind the upper and lateral eye-margins), but elsewhere it bears short, soft whitish pubescence; proboscis black and quite twice as long as the head (including the antennae); palpi blackish with longish erect yellowish-brown hairs all over its broader and somewhat dilated apical half; antennae blackish with the first segment a little longer than the second, and the third sausage-shaped segment about one and a half times the length of the first and second together; the three segments possess some short sub-erect yellowish hairs above.

Thorax bearing a rather dense tomentum which varies from avellaneous to whitish-pearl grey in colour and with three characteristic dull velvety black longitudinal stripes as follows : the median stripe is in reality a double stripe, one on either side of the mid-dorsal line, whose upper border, which is usually more or less narrower than the lower, extends from the upper margin of the scutum and ends towards, or a little below the middle of the scutum; the breadth of these two stripes (forming the median stripe) is rather variable; they may be quite narrow, very gradually tapering from their lower border to their upper margin where they are half as broad as below, and the avellaneous to whitish-grey space between them is about as broad as the broadest lower portion of the stripes, or they may be narrow, very elongate-triangular in shape with their upper border very narrow and steadily broadening down to their lower border where they are at least three or four times broader than above, in which case the pale tomented area between them is somewhat triangular but with the base of the triangle on the upper border of the scutum and the apex of the triangle between the lower borders of the dark stripes; in rare cases these two admedian stripes are united on their entire length and form one broad median stripe extending from the upper margin to the lower two-thirds of the scutum; the two dull black lateral stripes, occupying a position in the middle of the outer third of the scutum, are divided, each, by a fairly broad pale tomented space immediately below the transverse suture so that each lateral stripe

forms two spots; the upper spot is rounded-oval or subquadrate and the lower elongate-triangular with the apex of the triangle reaching almost to the inner margin of the postalar callus; the shape of this latter spot is also very variable and may even be of almost equal breadth throughout; the pubescence on the disc is long, sparse, erect and yellowish and as usual coarser and more dense on the sides of the upper half; the pleurae are concolorous black and covered all over with a thin white tomentum and the mesopleura possesses a longish erect pubescence which varies from soft, not dense, pale yellowish-white and restricted to about the upper half of the sclerite to quite coarse, dense and much darker yellow, and present all over; sternopleura with a few long pendent whitish hairs about the inner lower margin; scutellum of normal triangular shape, covered with a similar tomentum as the dorsum of the scutum and possessing a similar pubescence although somewhat longer and particularly many of the darker yellow hairs about the apical margin are much longer and coarser (almost bristles).

Wings with a distinct dusky tinge and a dark blackish-brown venation except the Sc yellow and a pale yellowish, distinct stigma; r-m cross-vein placed a little before the middle of 1st M_2 cell; m cross-vein straight, perpendicular; 1st A cell usually closed at a short distance from the margin and with a short petiole but occasionally it may be closed almost on the very wing margin and consequently without a petiole; squamulae with a yellow margin and a fairly dense but short white fringe. Halteres from pale ivory yellow to cream-buff with the basal half (or more) of its stalk always obscure brownish-black or blackish; occasionally the usually ivory yellow knob is obscured on the outer side.

Legs entirely black with the usual very short adpressed as well as the longer pubescence on the femora and tibiae yellowish; the few longer (longest) pendent softer hairs on the coxae and on the ventral side of the femora are whitish; claws cream-buff and blackish apically; pulvilli very pale cream-buff.

Abdomen deep dull velvety black with a more or less narrow (sometimes extremely narrow) conspicuous amber yellow to straw yellow band on the lower border of all the segments, and with long, upright, soft (but not dense) yellowish pubescence which is only hardly more dense on the sides; this pubescence particularly in many of the smaller, grey tomented specimens may be extremely pale, almost whitish; venter bearing a very thin, sparse whitish tomentum all over which, on the black ground colour gives it a darker grey colour than that of the pleurae, either concolorous or with the lower border of most of the sternites pale cream-buff; the long pendent but not dense pubescence is from pale yellow to whitish; hypopygium blackish with short erect yellowish pubescence and the lamellae (dorsal and

ventral) which are not inflated nor bulbous, bearing a thin white tomentum except at the apex which, together with the hooks appear dark shining reddish-brown.

♀. Not unlike the male but the general pubescence is shorter and less dense, the dull black longitudinal stripes on the thorax are often somewhat reduced in size and the yellow bands on the lower border of the abdominal segments broader than in the male and hence more conspicuous; head (Pl. XIX, figs. 300 and 301) apparently narrower and more rounded than in the male; the tomentum on the depressed and somewhat hollow centre of the broad frons is chamois coloured and contrasts with the greyish-tomented occiput, vertex, outer lateral margins and lower half (the broad sides) of the frons; ocellar tubercle blackish and the distance between its lateral margin and the inner angle of the eye is equal to about half its width; the erect blackish pubescence on the frons is less dense and shorter than in the male and also extends down on the genae; occiput with a similar pubescence as in the male but correspondingly shorter and less dense. The two admedian velvety black longitudinal stripes on the thorax (belonging to the median stripe) are generally much narrower, the pale tomented area separating them being about four times the breadth of one stripe; the black lateral stripes are also reduced in size, particularly the lower side spot being shorter, elongate oval and its lower border ending at some distance from the upper margin of the postalar callus; the general pubescence of the thorax is shorter than in the male, as usual; the knob of the halteres is more often of a darker, deeper yellow colour than in the male. The shorter pubescence on the abdomen is more often whitish; ovipositor (apparently formed by the eighth and ninth abdominal segments) yellow at the tip (ninth segment) and bearing short, erect white hairs.

♂, ♀ Length of body : 3.0-5.6 mm., of proboscis : 1.2-2.3 mm.; breadth (with wings expanded) : 9.6-11 mm.

This species varies considerably in size and the large series which I have been able to examine and which show a fairly wide variation in the colour of the tomentum and pubescence has largely helped me in establishing the synonymy of Loew's species *grata* whose description corresponds with many of the smaller specimens of Fabricius' *aurata* in my collection. I have captured this very pretty species year after year in Mariout (from Amria to Hammam) always between the middle of February to the middle of March. My records extend from 10.II. to 14.III.1921-38. I have more than 30 males and 40 females, all originating from the Mariout district; I know of no other locality in Egypt where this species is known to occur. *U. aurata* is also recorded from other countries in North Africa, from Palestine and from South Europe.

Usia bicolor NOV. SPEC.**DIAGNOSIS :**

A very small species with comparatively broad cream-buff bands on the lower border of the black abdominal segments, yellow calli and scutellum, distinguished by the extensive light cream-buff colour on the legs which strongly contrast with the brownish-black.

DESCRIPTION :

♂ : Unknown.

♀ : *Head* (Pl. XIX, figs. 302 and 303) almost rounded, only a little broader than long; frons at the vertex about one third the width of the head with its sides (the inner margin of the eyes) almost parallel, i.e. only a very little broader below, at the sides of the base of the antennae; frons pale yellowish silvery-grey to Naples yellow with a broad median longitudinal blackish stripe which extends from (and apparently an extension of) the rather broader blackish ocellar tubercle, to almost the base of the antennae, where it ends in the shape of a broad point of an arrow; in the silvery-grey specimen the margins of this median dark stripe is rather ill-defined and appears somewhat narrower than the pale space on either side (between its outer margin and the inner margin of the eye), but in the yellow specimen, the Naples yellow colour forms two well defined, rather conspicuous admedian stripes, which are decidedly narrower than the median blackish stripe and whose upper border is narrower, (owing to the fact that it follows the sides of the ocellar triangle) and situated immediately below and on the side of each lateral ocellus; the pale yellowish-grey or Naples yellow colour extends below on the cheeks, on the lower part of the head, all around the margin of the mouth as well as on the broader base of the proboscis and behind, on the occiput all along the outer eye margin except above where the blackish colour extends down from the vertex on the back of the head, including a short space touching the upper corner of the hind margin of the eye; the pale sides of the frons are obscured or somewhat darker in the feebly depressed hollow which is usually present immediately below the middle; the head is practically bare except for a very few minute pale hairs dispersed over the occiput; proboscis black, except its broad base yellowish and about one and a half times the length of the head (including the antennae); the very small and narrow palpi are pale yellow and bear sparse, minute whitish pubescence; antennae blackish, bare, with the fairly large third segment more than twice the length of the small first and second segments together.

Thorax of an unicolorous metallic silvery-grey colour with a faint greenish iridescence and (in one of the only two specimens) with very ill-defined

faint traces of the usual darker longitudinal stripes on the disc which can be seen when the specimen is examined at certain angles; the short, narrow, hollow space of the transverse suture is blackish; all the calli (humeral, prealar and postalar) are pale greyish-yellow to Massicot-yellow; the pubescence is practically inexistant for, it consists of a very few minute, very sparse white hairs on the sides of the upper half of the disc and still fewer microscopic hairs scattered about the margin of the lower half; pleurae black with an extremely thin and sparse whitish tomentum all over and with the broad upper margin of the sternopleura yellow; scutellum of the usual, normal triangular shape, of a satiny iridescent greyish-yellow colour and with about three to six erect, short whitish hairs.

Wings hyaline with a yellow to pale yellowish-brown venation; r-m cross-vein placed on the basal third of 1st M_2 cell; m cross-vein straight, perpendicular; 1st A cell short, closed at a long distance from the wing margin and consequently with a long petiole; squamulae with a pale yellow margin and a microscopic white fringe; halteres ivory yellow but the stem is obscure brownish about the base.

Legs with the coxae dark brown on the ventral side and pale cream-buff apically and on the sides; trochanters of front legs brownish-yellow, of middle and hind legs brownish-black; front and hind femora blackish-brown with the apical fifth or sixth cream-buff; middle femora with the basal half or less blackish-brown and its apical half or more cream-buff; tibiae blackish-brown except the extreme apex cream-buff; all the tarsi are blackish and the last tarsal segment is somewhat broad (distinctly more so than in the preceding four segments); the usual adpressed whitish pubescence on the legs is microscopic; claws black, yellowish about the base; pulvilli pale cream-buff.

Abdomen dull blackish with conspicuous, transverse cream-buff bands on the lower border of all the segments which occupy about the apical third or fourth of each segment; first segment obscure dark brownish with the lower bordered paler; the cream-buff transverse bands on the second and third segment may either be broader or of the same breadth as the bands on the consequent segments; the pubescence is extremely short very sparse and scattered, sub-erect and white; venter uniformly cream-buff except about its basal third or half obscure yellowish-brown and with very sparse, microscopic whitish pubescence; the minute ovipositor is yellow and bears microscopic whitish pubescence.

Length of body : 2.4 mm., of proboscis : 1.6 mm.; breadth (with wings expanded) : 5.2 mm.

Only two specimens (♀♀) are known, both captured at Kewal El Nedayet (S.E. Desert) on February 23rd 1938.

Usia deserticola NOV. SPEC.

DIAGNOSIS :

A small species easily distinguished by its more or less deep olive-buff colour, the rather large, stout third antennal segment and by the weak although distinct opaque light brownish tinge of the wings.

DESCRIPTION :

♂ : *Head* somewhat rounded-triangular, owing to the frons being unusually produced suddenly forward on its apical half; eyes meeting for a comparatively short distance, their line of junction being much shorter than the frons and their separation above, forming a small acute greyish triangle immediately below the well raised blackish-brown ocellar tubercle; frons glistening greyish-white and this colour extends down on the upper broader sides of the cheeks, as on the upper mouth margin (the very short face) and very narrowly down along the lower front margins of the eyes, leaving the inner two-thirds of the genae (the latetral borders of the mouth) dark greyish; jowels and lower third of the back of the head greyish-white and the rest of the back of the head and occiput brownish-grey to deep olive-buff; the pubescence is sparse and consists of a longish tuft of greyish hairs on and behind the ocellar tubercle, some shorter greyish hairs about the back of the head and some longer, soft, shaggy whitish hairs on and below the jowels; proboscis black but obscure yellowish-brown about the base and about one and a half times the length of the head (including the antennae); the minute thin and short palpi (much shorter than in the three preceding species) are blackish and bear very few, very short, erect yellowish hairs; antennae black and the two first segments bearing a thin whitish tomentum which gives them a greyish appearance and a few minute whitish stiff hairs dorsally; third segment unusually broad (being only a little longer than broad) and hardly twice as long as the two basal segments together.

Thorax bearing a fairly dense tomentum which varies from brownish-grey to deep olive-buff and with the usual darker longitudinal stripes on the disc rather ill-defined; the pubescence is not dense but long, erect and pale greyish-yellow; it is sparse and soft about the centre and much more dense, coarser (some of the hairs may almost be called weak bristles) about the humeri and on the sides of the upper half; pleurae concolorous pale brownish-grey tomented and almost bare except for a very few soft, longish white hairs on the upper part of the mesopleura; scutellum bearing a similar deep olive-buff tomentum to that on the scutum and with some long, erect (upturned) pale greyish-yellow hairs about the margin; many of the longer and coarser hairs showing minute black pits at their point of attachment.

Wings hyaline but possessing a weak although characteristic and distinct opaque light brownish tinge and with the veins snuff-brown and pale yellowish-brown about the base; r-m cross-vein placed on the basal third of 1st M_2 cell; m cross-vein almost straight; 1st A cell closed at a more or less short distance from the margin and consequently with a rather short petiole; squamae with a brown margin and a short, sparse white fringe; halteres ivory white but the basal half of the stalk is blackish.

Legs blackish with the extreme apex of the femora and the base of the tibiae brownish-red and bearing a very thin whitish tomentum which gives them a somewhat greyish-black appearance; the minute whitish pubescence is a little longer and less adpressed on the femora and contributes somewhat (together with the white tomentum) towards the greyish colour; apical tarsal segment not broader than the preceding segments; claws black but reddish-yellow about the base; pulvilli light cream-buff.

Abdomen covered with a similar (but not quite as dense), uniformly deep olive-buff tomentum to that of the thorax, with a very narrow, more or less pale cream colour band on the lower margin of each segment; the very pale yellowish-white pubescence is very sparse and short on the middle third of the lower margin of the segments but quite long and somewhat tufted about the base and on the sides of the segments; venter bearing a whitish tomentum with the lower margin of the sternites pale cream-buff and with sparse, short whitish pubescence; hypopygium small, not bulbous; upper (dorsal) lamellae broad, short, black, bearing a thin white tomentum and sparse, soft whitish hairs; lower lamellae obscure blackish with very short, dense white pubescence; apex of hooks and penis reddish-brown, the former with microscopic erect reddish-yellow pubescence.

♀ Not unlike the male but the body is somewhat shorter and broader.

Head (Pl. XIX, figs. 304-306) almost as long as broad and uniformly deep olive-buff tomented except on the lower side (behind the mouth margin and about the jowels) where it is whitish, as usual; frons, at the vertex, rather less than one third the width of the head with its sides gradually widening downwards to form the outer margins of the narrow genae which are usually yellowish-white; the very sparse and very short yellowish-grey pubescence is scattered on the sides and on the upper margin of the frons, on the very feebly raised ocellar tubercle and on the back of the head (where it is more dense than elsewhere) and, in spite of the shortness and insignificance of the pubescence, here and there, on the frons (and more frequently on the back of the head) the place of insertion of the hair shows a very minute black pit; behind the margin of the mouth and on the lower part of the back of the head the hairs are longer and white.

Thorax as in the male but in some specimens the olive-buff tomentum

is of a deeper, darker colour and the dark median stripe on the dorsum is more apparent and divided on its entire length (from the upper border to a little below the middle of the disc) by a broad, deep olive-buff stripe (about twice as broad as one of the dark stripe); the pubescence on the thorax is, as usual, much shorter than in the male and many of the individual hairs show a minute black pit at their place of insertion.

Wings as in the male but in several specimens the opaque brownish tinge is deeper and more pronounced; squamae with a yellow margin and a very short, sparse white fringe; halteres from cream colour to chamois but the basal half or more of the stalk is obscure dark brown.

Legs black, or brownish-black with the base of all the tibiae and often with the extreme base of the metatarsi cream-buff to brownish-red; the extreme apex of the femora is pale (cream-buff to brownish-red) only beneath; tomentum as in the male and the white pubescence is correspondingly shorter.

Abdomen as in the male but broader, shorter and the pubescence is whitish, sparse and very short and like elsewhere, many of the hairs leave a minute black pit at the point of attachment; ovipositor black, clothed with white tomentum and very short erect whitish pubescence.

♂, ♀ : Length of body : 2.7-3.6 mm., of proboscis : 1.2-1.9 mm.; breadth (with wings expanded) : 5.3-6.8 mm.

Only one male, the type, but a fairly large series of twenty females are known, of this very interesting and endemic species from two different localities in Egypt. Six females were collected in 1937, between the end of March and April 4th in Wadi Wirak and Agramieh (North Galala Plateau) and the male, together with the fourteen females were collected by me in Wadi El-Legà (South Sinai, altitude 1750 metres) between April 19th to 27th, 1939.

Usia elbae NOV. SPEC.

DIAGNOSIS :

A very small to minute species resembling *minusculus nov. spec.* but distinguished by the extremely thin and sparse whitish tomentum on the thorax which is present, at most, on the anterior half and which has a very weak bronze sheen, by the black spot on the outer dorsal side of the knob of the halteres in the male only, and in the female by the scutellum and postalar calli always blackish.

DESCRIPTION :

♂ : *Head* (Pl. XIX, figs. 307-309) higher than long and only a little broader than long; eyes touching for a long distance, leaving a small glis-

tening white to pale yellowish-white triangle, forming the frons; the well raised ocellar triangle is blackish but the occiput, the entire back and lower side of the head are usually greyish owing to a thin sparse white tomentum; the pubescence is practically inexistant and consists of a few scattered very short whitish hairs on the occiput and lower part of the head; proboscis black but its broader base is yellowish-brown to brownish-yellow and about two and a half times the length of the head, including the antennae (almost as long as the entire body); the very thin palpi are cream-buff, obscured about the base and bare; antennae black, quite bare, and with the comparatively narrow sausage-shaped third segment about twice as long as the first and second segments together.

Thorax black and on the anterior third to half of the disc only, bearing a very sparse, thin, white and yellow tomentum which, when examined at certain angles, gives it a faint iridescent metallic bronze or golden sheen and showing usually but very indistinctly traces of the usual darker longitudinal stripes; the pubescence on the disc is absent but on the sides of the anterior half there are a few scattered, very short, erect, whitish or pale yellowish hairs; pleurae concolorous grey (black with a uniform thin white tomentum) and quite bare (even the usual tuft on the upper half of the mesopleura is absent); scutellum black with an extremely thin (often imperceptible) white tomentum and with about eight short upturned pale yellowish hairs about the margin.

Wings hyaline with a cream-buff venation; r-m cross-vein placed towards the basal fourth of 1st M_2 cell; m cross-vein almost straight, very feebly undulated; 1st A cell closed at some distance from the margin and consequently with a longish petiole; squamulae with a very pale yellowish margin and a very short white fringe; halteres more or less pale cream-buff with the stalk obscure brownish about the base and the knob bearing a large blackish spot on the outer side.

Legs: anterior pair blackish, middle and posterior pair blackish-brown with all the knees (apex of femora and base of tibiae) from cream-buff to brownish-red; coxae blackish but reddish-yellow at the apex; trochanters dark reddish-brown but reddish-yellow about the two extremities; the pubescence consists only of the usual very short, adpressed, whitish hairs, which, here are microscopic; the minute claws are blackish but yellowish about the base; pulvilli pale cream-buff.

Abdomen brownish black with more or less conspicuous cream-buff transverse bands on the lower border of the segments which vary in breadth, from occupying the apical third of the segments to being very narrow, and appearing as a very narrow yellow line on the extreme hind border; the pubescence is sparse, short, sub-erect and whitish; venter from unicolorous

cream-buff to more or less dark brownish-red with the lower border of the sternites hardly paler; the minute hypopygium is not bulbous, the ventral lamellae apparently dark brownish-red and the dorsal lamellae blackish; the pubescence on the venter is practically absent and on the genitalia microscopic, erect and whitish.

♀ : Not unlike the male but the head, as usual, is more rounded; frons, at the vertex rather less than one third the width of the head with its sides very feebly and very gradually widening downwards to about its lower third when they run down almost parallel, to form the outer sides of the triangular genae; the occiput, vertex and upper two-thirds of the frons are black but appearing dark greyish owing to a thin white tomentum, but the lower third of the frons has usually a broad triangular or subquadrate median blackish extension whose apex reaches almost the basis of the antennae and which strongly contrasts with the outer lower angles of its lower third which are more or less pale ivory yellow; the extent, however, of this ivory yellow colour on the sides of the frons is very variable (Pl. XIX, figs. 310-314, Pl. XX, figs. 315-317) and it may extend up to the middle, or all the way to the vertex where it ends in a point on the side of the inner eye angles. The general pubescence is, as usual, shorter and sparser than in the male. The halteres are usually darker, being from cream-buff to quite dark chamois, but are less obscured about the base (of the stalk) and the knob is concolorous. The wings, legs and abdomen as in the male (except, of course, the usual shorter and sparser pubescence), but the lower borders of the sternites are more often paler and are more contrasted with the dark colour of the segments; ovipositor apparently cream-buff or yellowish with very short erect whitish hairs.

♂, ♀ Length of body : 1.5-3.0 mm., of proboscis 1.5-2.0 mm.; breadth (with wings expanded) : 3.5-5.5 mm.

More than 40 males and 50 females have been obtained from Gebel Elba (Wadi Edeib and Wadi Kansissrob) between the middle of March to the end of April, 1928 and two males from Wadi Feran (South Sinai) 25.IV.1939.

Usia flavipes NOV. SPEC.

DIAGNOSIS : A very small fly, at once distinguished by the entirely reddish-yellow

legs (except the apical tarsal joints blackish), the basal segment and base of the third segment of the antennae reddish-yellow and by the blackish scutellum which possesses a reddish-yellow margin.

DESCRIPTION :

♂ : Unknown.

♀ : *Head* of a characteristic greyish-yellow colour extending on the

entire frons, down on the sides of the antennae and on the very narrow genae to the jowels and for a short distance on the lower part of the back of the head; ocellar tubercle, vertex and occiput (all the upper two-thirds of the back of the head) of a dark, obscure greyish-brown (almost blackish) colour; the pubescence is almost inexistant except for a very few very short yellowish hairs on the ocellar tubercle on the back of the head (about the outer borders of the occipital callosities) and some longer white hairs on the lower side of the head, about the jowls; proboscis blackish, about two and a half times the length of the head (including the antennae); the minute, very thin and very short palpi are brownish-yellow; antennae with the basal segment reddish-yellow, the second segment black and the third laterally compressed but short-sausage-shaped segment, black but reddish-yellow at the base and hardly twice the length of the two first segments together.

Thorax black but covered with a metallic grey tomentum, showing the darker but narrow and ill-defined longitudinal stripes on the upper half of the disc and with the humeral, supra-alar and postalar calli reddish-yellow; the pubescence is almost inexistant; pleurae blackish, bearing a thin greyish tomentum and with the upper margins of the sclerites obscurely yellowish; scutellum with a similar tomentum as that of the scutum, black but reddish-yellow all about the margin and when viewed in profile this colour is seen to extend on its ventral side; its pubescence consists of a very few (about seven) extremely short but erect pale yellowish hairs.

Wings hyaline with a pale yellow venation (except R_1 vein which is brownish) and all the longitudinal veins are reddish-yellow at the base; r-m cross-vein placed on the basal third of 1st M_2 cell; m cross-vein rather long, feebly bent towards the middle; 1st A cell closed at a rather long distance from the margin and consequently with a longish petiole; halteres reddish-yellow and the stalk is obscured about the basal half.

Legs entirely reddish-yellow except the apical third of the metatarsi and the rest of the tarsal segments blackish; the microscopic pubescence is glistening pale yellowish; claws reddish-yellow and blackish apically; pulvilli pale yellowish.

Abdomen blackish with the basal segment reddish-yellow and a narrow transverse reddish-yellow band of the lower border of each of the second to sixth segments; the pubescence is very sparse, adpressed, short and pale yellowish; venter reddish-yellow; ovipositor reddish-yellow with short yellowish pubescence.

Only one female of this interesting and characteristic species is known so far, captured by me at the end of June, 1941 in Wadi El-Legà (South Sinai).

Usia grisea NOV. SPEC.**DIAGNOSIS :**

A small species with glistening silvery-white frons, brownish-grey thorax and scutellum (the former with well defined but not conspicuous darker blackish-brown longitudinal stripes) and a short dull blackish abdomen with narrow olive-ochre transverse bands on the hind border of the segments.

DESCRIPTION :

♂ : *Head* (Pl. XX, figs. 318-320) somewhat triangular (when seen from above) and nearly as long as broad; the eyes touch for a rather long distance (not by any means as long as in *elbae nov. spec.*) and then suddenly widening out before the lower third of the length of the head (between the base of the ocellar tubercle and the base of the antennae) to form the small triangular (but rather broad) frons which is glistening pure silvery-white; this colour extends down on the upper sides of the genae but these are narrow and whitish-yellow below; small ocellar tubercle blackish; vertex blackish with a thin white tomentum and short, not at all dense yellowish pubescence; proboscis about one and a half times the length of the head (including the antennae) and black but blackish-brown about its broader base; palpi apparently short, very narrow and blackish; antennae black, bearing a very sparse, thin, white tomentum and apparently bare; third segment narrowed on its apical third and about one and a half times the length of the first and second segments together.

Thorax clothed with a rather dense brownish-grey tomentum with the usual three darker longitudinal stripes on the disc well defined but not conspicuous; the median blackish-brown stripe, whose upper margin is on the front border of the disc is divided on its entire length by a fairly broad brownish-grey stripe (about one and a half times the breadth of each darker admedian stripe) and ends towards the lower two-thirds of the disc; each of the darker lateral stripes, situated on the middle area of the outer third of the disc, is interrupted by a fairly broad brownish-grey space immediately below the transverse suture, thus forming two darker spots, the upper of which is rounded-oval, with its upper margin parallel with the lower border of the humeral callus, and the lower spot in the shape of a narrow, short, undulated, darker stripe, with somewhat emarginate sides and whose lower border ends at a short distance above the inner angle of the postalar callus; the short, sparse, erect pubescence on the scutum is pale yellowish, somewhat longer, more dense and whitish on the sides of the upper half, as usual, and many of the hairs, particularly on the paler greyish areas show minute black pits at their point of attachment; pleurae concolorous grey

and the mesopleurae possess short soft white hairs all over; scutellum uniformly (but rather more thinly) brownish-grey tomented like the thorax and with a similar sparse short but more erect pale yellowish pubescence and here also, many of the hairs show minute black pits at their place of insertion.

Wings hyaline with bister or sepia venation except the Sc pale yellowish; r-m cross-vein placed towards the basal fifth of 1st M_2 cell; m cross-vein straight; 1st A cell closed at a short distance from the wing-margin and consequently with a short petiole; squamulae with a pale yellowish border and a short, sparse, whitish fringe; halteres ivory yellow but the stalk is obscure brownish-black on its basal half and the very large knob possesses a small brownish elongate-oval spot on the outer side, near the base.

Legs brownish-black with all the knees (apex of femora and base of tibiae) as well as the extreme apex of the front and middle tibiae and extreme base of the front and middle metatarsi reddish-yellow; the extreme apex of the hind tibiae and extreme base of the hind metatarsi are obscure brownish-red; the very short, adpressed pubescence is sparse, all whitish, and only a little longer and outstanding on the sides of the front and middle femora; claws black and obscure reddish-brown about the base; pulvilli charnois colour.

Abdomen unusually short, dull brownish-black with narrow olive-ochre transverse bands on the lower border of the segments; the short pubescence is sparse, all pale yellowish and a little longer and denser on the sides; venter uniformly pale brownish-grey tomented with the narrow lower border of the sternites pale cream-buff and very short sparse pale yellowish pubescence; hypopygium large; upper (dorsal) lamellae black, clothed with thin whitish tomentum and longish (comparatively) outstanding pale yellowish hairs; lower lamellae, apex of hooks and penis reddish-chestnut and the former with extremely short, erect yellowish pubescence.

♂ Length of body : 2.5 mm., of proboscis : 2 mm.; breadth (with wings expanded) : 5.8 mm.

♀ : Unknown.

Only a single specimen of this species is known, captured in Wadi Ehameib (West Elba Mountain), on the administrative border of Egypt and the Soudan, by my assistant Mohamed Tewfik Effendi on February 28th, 1938.

***Usia ignorata* BECK.**

Becker (1906), *Zeitschr. f. syst. Hymen. u. Dipt.*, VI, 15, 24; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte* (1924), 179, 181; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 66, 73, fig. 29; Austen (1937), *Bombyl. of Palestine*, 55, 40, 56.

DIAGNOSIS :

A small, entirely shining black species at once distinguished by its aeneous thorax and abdomen, entirely black pubescence, black legs, the broad and short, transversely wrinkled scutellum and by the eyes in the male, which are almost as widely separated as in the female.

DESCRIPTION :

♂ : *Head* (Pl. XX, figs. 321-323) about twice as broad as long (including the antennae), entirely shining black and quite bare except for a short, narrow brownish-grey tomented line on either side of the lower half (the wider part) of the frons close to the inner eye-margins and which extend but only a short way down on the sides of the very narrow triangular genae; ocellar tubercle large, well raised, very shining black, occupying the entire space between the upper inner angles of the eyes and bearing a well furnished tuft of longish erect coarse black hairs; the upper half of the frons, whose sides are almost parallel, is much less shining than the ocellar tubercle, concave immediately below the median ocellus, and bears minute wrinkles or furrows; the lower half of the frons, which is the broadest and whose sides bear the greyish tomentum, has a convex surface; the black occiput is clothed with short but rather dense and coarse black pubescence which becomes much longer below the head and all around the back and sides of the mouth opening; proboscis black, rather broad at the base from where it very gradually tapers to the apex, and comparatively short, being not longer than the length of the head (including the antennae); palpi short, narrow, blackish with some short erect black hairs; antennae black, dull, bearing a very thin, sparse brownish or greyish tomentum, bare and with the somewhat sausage-shaped third segment (when seen from the side) about twice as long as the first and second segments together; when seen from above, the third segment appears much narrower on its apical third or half.

Thorax very shining black, aeneous (when seen from certain angles) transversely wrinkled and finely but rather sparsely punctured; the blackish pubescence is longish, erect and sparse on the disc but on the sides of the upper half it is somewhat longer, more dense (almost tufted) and coarser; pleurae rather shining black and bare except for the usual tuft of short but fairly dense erect black hairs on the upper half of the mesopleura; scutellum comparatively broader and shorter than in the other (Egyptian) species very shining black (aeneous) like the thorax, transversely wrinkled and finely but sparsely punctured; the blackish pubescence is not dense but longer and more upturned than on the scutum.

Wings quite hyaline or with a faint but distinct dusky tinge and with the veins from cream-buff or chamois coloured to brownish-black; r-m cross-

vein placed a little before or on the middle of 1st M_2 cell; m cross-vein not quite straight, with a weak median undulation; 1st A cell closed at a more or less short distance from the wing margin; squamulae with a pale yellowish to brown margin and a very sparse and extremely short white fringe; halteres usually light ivory white with the basal half (or more) obscure blackish-brown but frequently the entire knob and apical half of the stem may be much darker coloured, i.e. from honey-yellow to Isabella colour.

Legs entirely black with the short adpressed pubescence also blackish and on the femora, particularly, where the hairs are a little longer and much less adpressed, the base of attachment of the hairs show minute pits (closely punctured); rarely however (two specimens out of over fifty), the legs may be auburn colour ⁽¹⁹⁾; apical tarsal segment broader than the preceding segments; claws blackish but obscure reddish-brown about the base; pulvilli cream-buff.

Abdomen short, somewhat broad-triangular in shape, entirely shining aeneous-black, finely punctured and feebly punctured but distinctly transversely wrinkled; the entirely black pubescence is shorter than on the scutum but much more dense (almost tufted), sub-erect and coarser; venter black with short, sparse black pubescence; hypopygium very large, bulbous and very shining black (Pl. XX, figs. 324 and 325).

♀ : Very similar to the male but the eyes (Pl. XX, figs. 326 and 327) are only a very little more widely separated from each other, the general black pubescence is shorter, as usual, and the abdomen is often comparatively longer and broader; ovipositor black with microscopic erect blackish pubescence.

♂, ♀ Length of body : 2.2-5.5 mm., of proboscis : 1.1-1.5 mm.; breadth (with wings expanded) : 4.5-9.0 mm.

U. ignorata is our commonest species of the genus in Egypt. I have captured large series of over fifty specimens of both sexes from two very diverse localities, namely the Mariout district (from Abdel-Kader to Haminam, including Amrieh, Behig and Burg-el-Arab) and south West of Cairo (Abu Rawash, Kafr Hakim, Sakkara and Mazghouna). My dates extend from the beginning of February to the end of March. Bezzi's (1925, *loc. cit.*, pp. 179, 181) record of *Usia forcipata* Brullé (1832) in all probabilities refers to this species. I have not seen the type of Brullé's species but the so-called distinctive characters adopted by most previous authors such as Bezzi, Engel and Austen between Brullé and Becker's species, relating to the coarse or fine punctuation of the body and the faintly dusky

(19) These two specimens appear to be immature, i.e. captured too soon after their emergence from the cocoon and as if the appendages (legs) are not yet fully chitinized.

tinge of the wings is no criterium, as shown in the large series which I have been able to examine. Moreover, my figure of the male genitalia of *ignorata* does not agree with Engel's (1937, *loc. cit.*) figure and as the same author figures the genitalia of *forcipata* as well, and which, according to his drawings are quite different, I am unable to drop Becker's species to the rank of synonymy, much as I feel inclined to do.

U. ignorata is also recorded from Southern Algeria, Tunis, Palestine and Syria, and its apparently closely allied species *U. forcipata* is known from Greece, Palestine and Algeria.

Usia inornata ENG.

Engel (1937), in Lindner: Flieg. Pal. Region, 25, Bombyl., 64, 74 (♀).

DIAGNOSIS :

A small species with hyaline wings, pale brownish-grey thorax with very inconspicuous darker longitudinal stripes, distinguished by the abdomen which is dark brownish-olive with deep colonial buff to chamois stripes on the lower border of the segments and more or less dark yellowish-brown legs with the knees paler.

DESCRIPTION :

♂ (*Novum*).

Head (Pl. XX, figs. 328 and 329) broader than long; eyes meeting for a distance which is a little longer than half the length of the head (from the vertex to the base of the antennae) and then suddenly widening out a little after the middle to form a small but fairly broad glistening white frons which has a faintly yellowish tinge; this white tomentum extends down on the entire narrow cheeks, on the very short face, as well as on the back of the head and all around the back of the mouth; the pubescence consists of a small tuft of short forwardly directed pale yellowish-grey hairs on the ocellar tubercle, some longer, more dense (but not tufted) yellowish-grey hairs on the back of the head and of some shorter, fine, sparse white hairs on the jowls; proboscis about twice as long as the head (including the antennae), black except all around the base and the broader base itself cream-buff; the very short and small palpi are obscure yellowish-brown, gradually broadening to the tip and bearing apparently one short stiff whitish hair; antennae black but the first and second segments which possess some minute, stiff, pale yellowish hairs on the dorsal side, appear more greyish owing to their being covered by a rather more dense white tomentum than the third segment; this latter is a little narrower on its apical third and is less than twice the length of the first and second segments together.

Thorax clothed with a fairly dense tomentum which varies from pale brownish-grey to light greyish-brown with the usual three darker, blackish-brown longitudinal stripes on the disc fairly well defined and not conspicuous; the median dark stripe, whose upper border is on the front margin of the disc, is divided on its entire length by a median pale brownish-grey to light greyish-brown stripe (about one and a half times the breadth of each darker admedian stripe) and ends towards the lower three-fourths of the disc; the lateral darker stripes have less well defined margins and are interrupted by a very broad paler space immediately below the transverse suture, thus forming two spots each, the upper of which is rounded-oval, with its upper margin parallel with the lower border of the humeral callus, and the lower spot either in the shape of the latter but larger, or in the shape of narrow very indistinct stripe whose lower border ends on the inner angle of the postalar callus; the pubescence is short, erect, not dense and pale yellowish, but on the anterior border whitish and a little longer as usual, on the sides of the upper half of the disc; the scutum is very finely punctured (minute black pits at the point of attachment of the hairs); pleurae concolorous grey owing to their being covered with a fine white tomentum and the mesopleura is clothed with fine longish white hairs all over; scutellum uniformly and rather densely brownish-grey to greyish-brown tomented, very finely punctured and with a similar but rather longer pale yellowish pubescence than that of the scutum.

Wings hyaline with Isabella colour to snuff-brown venation; vein R_4 emitting or not a short petiole near its base (near its point of bifurcation with vein R_5); r-m cross-vein placed at, or before the basal third of 1st M_2 cell and the cross-vein may be duplicated (in the right wing only, a second cross-vein may be present, half way between the base of 1st M_2 cell and the usual cross-vein); m cross-vein not straight, unusually undulated, or this cross-vein may be totally wanting and consequently the 1st M_2 and M_1 cells form one single cell; in the latter case on one wing only (the left), M_1 cell is separated from 1st M_2 cell only by a short petiole, so that the three cells M_1 , 1st M_2 and 2nd M_2 form one single cell; 1st A cell closed at a small distance from the margin and consequently with a short petiole; squamulae with a pale yellowish to brown margin and a short sparse whitish fringe; halteres with the stem obscure blackish-brown except the apical third light cream-buff and the knob ivory yellow to light cream-buff.

Legs more or less dark yellowish-brown to blackish-brown with the knees (extreme apex of femora and base of tibiae) reddish-yellow; the apex of the front and middle tibiae is also paler and sometimes the tarsi of the same are less obscured than those of the posterior legs; the very short, adpressed pubescence is fairly dense, glistening yellowish-white or whitish

and a little longer and outstanding on the sides of the femora; coxae blackish but yellow at the apex and with some soft, erect, white hairs; trochanters obscure brownish-yellow; claws blackish; pulvilli light cream-buff.

Abdomen not short, dark brownish-olive with fairly broad (about one third to one fourth the breadth of the segment) deep colonial-buff to chamois stripes on the lower border of the segments except the basal segment with the dark area blackish-grey and finely punctured; the pubescence is short, sub-erect, not dense, pale yellowish, and longer and rather more dense, as usual, on the sides, particularly about the base; venter blackish-grey with the lower border of the sternites cartridge-buff and a pair of small oval black spots on each of the second to sixth sternites, situated each towards the middle of the outer half (but rather nearer to the lower border); the pubescence on the venter is not unlike that on the dorsum, sub-erect, pale yellowish and showing fine punctures; hypopygium (Pl. XX, fig. 330) small, not bullous, dorsal lamellae blackish-brown with some yellowish hairs and the ventral lamellae yellowish-red with very short erect yellowish pubescence.

♀ : Not unlike the male, with the general colour of the tomentum on the head and thorax also varying from pure white to light greyish-brown, but the abdomen is somewhat broader and the general pubescence shorter and more sparse.

Head (Pl. XX, fig. 331) more rounded, as usual, than in the male; frons, at the vertex very gradually and feebly broadening down (from the inner angles of the eyes) to the outer border of the genae, where it is hardly one and a half times as broad as above (at the vertex) and with a small triangular black spot slightly above the centre.

Wings as in the male, with the m cross-vein unusually undulated but in none of the three females known is the r-m cross-vein duplicated nor the m cross-vein absent.

Legs with the light colour of the knees somewhat more extensive, particularly on the front and middle tibiae, whose apical fourth or third is reddish-yellow.

Abdomen somewhat broader than in the male and the stripes on the lower border of the segments are from deep colonial-buff to honey yellow and may be as broad as half the segment; ovipositor reddish-yellow, obscure brown about the apex and bearing microscopic pale yellowish hairs.

♂, ♀ Length of body : 4.2-5.4 mm.; of proboscis : 1.9-2.5 mm.; breadth (with wings expanded) 7.3-10 mm.

Only two males and three females (including the types) of this species are brown, originating from Gebel Elba (Wadi Edeib), South-Eastern Desert (January 30th to March 7th 1930-38).

Usia lutescens BEZ.

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 179, 180, 1 (♀); Engel (1937), in Lindner; *Flieg. Pal. Region*, 25, Bombyl-, 63, 75, f. 31 (♀).

SYNONYMY :

orientalis Param. (1929), *Mém. Acad. Sciences Ukraine*, XI, livr. 2, 127, XII, 189, 190 (*Parageron*).

DIAGNOSIS :

A small, very distinct species owing to the almost entirely yellowish colour of the body, legs and wing-venation.

DESCRIPTION :

♂ (*Novum*).

Head (Pl. XX, fig. 332, and Pl. XXI, figs. 333-335) broader than long; eyes meeting for a distance about equal to those of *inornata*; the small, triangular, glistening white tomented frons is about one third the length of the head (from the hind border of the ocellar tubercle to the base of the antennae); the white tomentum on the frons extends down on the very short face and upper part of the genae but soon becomes much thinner on the rest of the cheeks and on the entire lower side of the head and where it hardly conceals the yellowish ground colour; ocellar tubercle, occiput and all the back of the head pale yellowish-grey; the pubescence consists of a few very short, forwardly-directed pale yellowish hairs on the ocellar tubercle, some short pale yellowish hairs (shorter and less dense than in *inornata*) on the back of the head, which become a little longer and white beneath and about the hind margin of the mouth; proboscis comparatively short, being not quite as long as the length of the head (including the antennae), much broader about the base, and yellow except at the apex brown to blackish; the short and narrow palpi are also yellow; antennae yellow but the third segment, which is about one and a half times the length of the first and second segments together is usually darker (being brownish-yellow or yellowish-brown while the other segments pale yellow or whitish-yellow).

Thorax greyish yellow or cream-buff with the three blackish longitudinal stripes on the disc very broad but often ill-defined and somewhat concealed by a rather dense white tomentum (except in « greasy » specimens) and with two characteristic oval velvety black spots situated one on each end of the transverse suture; the median blackish stripe, which occupies the middle third of the disc, and which is entire, and with parallel outer margins, extends from the upper border of the scutum down to about

its lower four-fifth, where it fades away; the side stripes occupy each, the greater part of the outer third of the disc, being separated from the median dark stripe by a narrow pale greyish-yellow line but which is distinctly (although a little broader below than above; the upper margin of each blackish side stripe is rounded and situated at a short distance below the side of the upper border of the disc and the humeral callus; at the transverse suture, the darker side stripe is interrupted by the oval velvety black spot on both sides of which the suture is paler, so that each dark side stripe is obscurely divided into an upper somewhat rounded spot and a lower elongate-oval spot; this latter has a broad rounded upper margin (immediately below and following the suture) and its sides gradually narrow down to a point which ends at a short distance above the inner angle of the postalar callus; the pubescence is short, sparse and pale yellowish and the scutum is finely punctured; pleurae greyish-yellow to yellowish-grey but the sternopleura and hypopleura are almost entirely blackish, and the mesopleura only with soft outstanding white hairs all over (showing also fine punctures); scutellum cream colour with longer upstanding pale yellowish pubescence than the scutum (and not dense) but more finely punctured.

Wings hyaline with Naples yellow venation but the upper wing margin, the Sc. and R₁ vein even paler (pale straw yellow); r-m cross-vein rather variable in position, either placed towards the basal third or on the middle of 1st M₂ cell; m cross-vein, unusually undulated or rather arched outwardly; 1st A cell closed at a short distance from the wing margin and consequently with a short petiole; squamulae with a pale yellow margin and a short white fringe; halteres from ivory yellow to cream colour or cream-buff and the stem is usually a little darker about the base.

Legs entirely yellow but the middle and hind femora are usually reddish-yellow except their apex paler, the hind tibiae yellowish-brown about the tip and the tarsi obscure blackish-brown about the tip (gradually becoming darker, from the apical third or so of the metatarsus to the fifth segment, which is almost blackish); the very short, adpressed sparse pubescence is glistening whitish and hardly longer beneath and on the sides of the femora; claws black and reddish-yellow about the base; pulvilli cream-buff.

Abdomen from cream colour to cream-buff with the lower border of the segments either paler (almost whitish in the cream-colour specimens) or of uniform colour throughout, and consequently without distinct, or totally devoid of bands; the pubescence is short, sparse, sub-erect, whitish and hardly longer on the sides; venter concolorous with short and very sparse white hairs; hypopygium (Pl. XXI, fig. 336) cream-colour to yellowish-red, not very large or bullous and with very short erect but soft whitish pubescence.

♀ : Similar to the male but the pubescence on the thorax and abdomen is shorter, as usual so that in this sex the hairs are extremely short, sparse, and insignificant. The frons, at the vertex very gradually and feebly broadens down, as in the female of *inornata* but is quite markedly produced below, at the base of the antennae (more so than in any other species) (Pl. XXI, figs. 337 and 338); the frons is of a rich cream yellow colour like the comparatively broad genae (owing to the produced upper margin of the face) but darker about the centre and at the vertex where it is more or less dark cream-buff and clothed with sparse, sub-erect, pale yellowish, microscopic pubescence; in clean, well preserved specimens this darker centre of the frons shows very ill-defined darker brownish markings and one shallow transverse wrinkle in the very middle (its shallowest part) but in greasy specimens, the upper half bears three elongate-oval blackish-brown spots forming a triangle (rather similar to the triangle of the ocelli above them ⁽²⁰⁾); occiput cream-buff with short, erect, pale yellowish pubescence; lower half of genae and all the lower part of the head white and the short sparse pubescence on the jowls is whitish. Ovipositor yellow with minute pale yellowish pubescence.

♂, ♀ Length of body : 3.0-5.0 mm., of proboscis : 0.9-1.3 mm.; breadth (with wings expanded) : 6.0-9.0 mm.

This species is not common, although its distribution extends over a fairly wide area South-West of Cairo. Only seven males and eight females are known, including the types and which have been captured between 1925-40 (May 1st to August 30th) at Kerdacé, Abu Rawash, Kafr Hakim, Mallaha, Kafr El-Katta, Wadi El Nosousi, as well as in Kharga Oasis. If Paramonow's species *orientalis* (Parageron) (1929, *loc. cit.*) is synonymous with this species it would be also known from Transcaspiia (near Aschabad).

***Usia lutescens minor* NOV. VAR.**

Two female specimens from Mallaha (25.7. and 25.8.1927) are extremely small (length of body : 2.5 mm., of proboscis : 0.6 mm.; breadth (with expanded wings) : 4.5 mm.) but they both entirely agree in colour, shape of head, etc., with the above species. They may possibly belong to a distinct species but unless more ample material of both sex are available for study, I feel that these two specimens should not be given more than a varietal rank.

⁽²⁰⁾ Bezzi's type which is in my possession, is, unfortunately a « greasy » specimen in which the grades of yellow, as well as whitish colour of the tomentum about the margins have totally disappeared, and this no doubt accounts for their omission in his original description; and as to « ...et avec deux lignes noires sur le milieu de l'occiput, de chaque côté du col » probably refers to the occipital callosities of Engell.

Usia minusculus NOV. SPEC.**DIAGNOSIS :**

An extremely small species resembling *elbae* but distinguished by the iridescent golden bronze colour of the thorax of the male, the absence of the black spot on the halteres in both sexes, and in the female by the scutellum which is usually yellow and the postalar calli always yellow.

DESCRIPTION :

♂ : *Head* (Pl. XXI, figs. 339 and 340) very similar in height, breadth and length to *elbae* but the eyes touch for a somewhat shorter distance, leaving the small glistening white or pale yellowish-white triangular frons a little more elongate above (the top of the triangle formed by the beginning of the separation of the eyes); the rest of the head, including the proboscis, palpi and antennae are as in *elbae*.

Thorax of a beautiful iridescent golden-bronze colour on a black ground colour but the postalar calli are always yellow or reddish-yellow; when examined with the light coming from in front, traces of the three darker longitudinal stripes are seen as narrow blackish lines on the upper half of the disc and the transverse suture is black, but when seen with the light coming from the side, the disc appears concolorous except for two small round-oval blackish spots, each one immediately behind the transverse suture; the pubescence on the disc is absent, as in *elbae*, and on the sides of the anterior half there are a very few, scattered, very short, erect, whitish hairs; pleurae concolorous and quite bare as in *elbae*; scutellum black, clothed with a similar to, but thinner golden-bronze tomentum than that of the scutum, and with a few (from five to ten) short, erect, pale yellowish hairs scattered about the margin and apical third.

Wings hyaline with a pale yellow venation; r-m cross-vein placed towards the basal fourth or third of 1st M_2 cell; m cross-vein straight; 1st A cell closed at a long distance (somewhat longer than in *elbae*) from the wing margin and consequently with a very long petiole; squamulae with a yellow to pale yellow margin and a very sparse and very short white fringe; halteres from pale cream-buff to chamois, hardly darker about the base and the knob concolorous.

Legs similar to those of *elbae* but the knees, which are usually more or less pale reddish-yellow (occasionally darker) are more extensively paler, the reddish yellow colour extending over the apical fourth or fifth of the front and middle femora; the pubescence, the claws and the pulvilli are the same as in *elbae*.

Abdomen dark blackish-brown to blackish with more or less large cream colour to cream-buff or chamois, transverse bands of the lower border of the segments; the sparse, short, suberect pubescence is all whitish, as in

elbae and only a little longer at the sides, about the base; venter as in *elbae*; the minute genitalia (Pl. XXI, fig. 341) are usually concealed, reddish-yellow to yellowish and clothed with erect, whitish, microscopic pubescence.

♀ : Not unlike the male and much like the female of *U. elbae*.

Head (Pl. XXI, fig. 342) as in *elbae* but the frons is ivory yellow (dark cream-buff in « greasy » specimens) with a broad blackish median stripe (occupying, quite, the middle third of the width) and extending from the ocellar tubercle down almost to the base of the antennae where it ends either in a broad rounded or quite sharp angle; on the upper two-thirds of the frons the blackish stripe usually has fairly deeply convex side margins thus leaving on either side a somewhat crescent-shaped paler stripe, and on the lower third of the frons it forms an almost perfect triangle in the shape of the head of an arrow, whose apex almost touches the base of the antennae and whose base lies in the transverse wrinkle of the frons so that the whole design resembles a broad short arrow whose broader base lies on the vertex; immediately above the transverse wrinkle and in the centre of the frons there is a small triangular black marking like a pit with a thin short black line directed upwards and this design has also the shape of a minute arrow, whose apex touches the centre of the transverse wrinkle.

Thorax of a somewhat less brilliant golden-bronze colour, owing to the tomentum being less dense than in the male; often the scutellum is yellowish or reddish-yellow but the humeral and postalar calli are always more or less pale yellow.

Wings and legs as in the male.

Abdomen as in the male but usually longer and broader and with the very sparse and very short whitish pubescence even sparser and shorter, as usual; ovipositor yellowish with erect, microscopic whitish hairs.

♂, ♀ Length of body : 1.4-3.2 mm., of proboscis : 1.4-2.0 mm.; breadth (with wings expanded) : 3.3-5.5 mm.

Four males and twenty five females are known, all originating from the same locality as *elbae*, Gebel Elba (Wadi Edeib and Wadi Kanssissrob), South Eastern Desert between the middle of March to the end of April, 1928.

Usia ornata ENG.

Engel (1937), in Lindner: Flieg. Pal. Region, 25, Bombyl. 64, 76, f. 33, ♂.

SYNONYMY :

tomentosa Eng. (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl. 64, 78, ♀.

DIAGNOSIS :

A small fly in which the male is entirely velvety black (body) with three very characteristic grey longitudinal stripes on the upper half of the thorax and with blackish legs but the female almost entirely concolorous pale greyish-brown with the usual darker longitudinal stripes on the thorax and very dark (almost blackish) reddish-brown legs.

DESCRIPTION :

♂ : *Head* (Pl. XXI, figs. 343-346) broader than long; eyes meeting for a distance which is much longer than half the length of the head (from the vertex to the base of the antennae) and leaving a very short broad triangular frons which is glistening pure white; this white tomentum extends down on the narrow cheeks but is less dense underneath, on the jowls and on the back of the head, which are consequently blackish-grey; the small blackish ocellar tubercle bears a tuft of more or less pale yellowish erect hairs; the pubescence on the occiput and back of the head is fairly dense, not long and pale yellowish, but below and all around the back of the mouth margin it is longish, shaggy and white; frons and genae bare; proboscis black and somewhat longer than the length of the head (including the antennae); the very short palpi are more or less dark reddish-brown to blackish with stiff yellow hairs all about the apex; antennae black but clothed with a very thin whitish tomentum which gives it a greyish-black appearance; third segment almost twice as long as the first and second segments together and the three segments are almost bare.

Thorax of a dull but rich velvety brownish-black colour, with the three pale (grey) longitudinal stripes on the anterior half of the disc very characteristic in shape; the median grey stripe is narrower and much shorter than the two lateral stripes; it extends from the upper border to the lower margin of the anterior third of the disc (about parallel with the transverse suture) and is separated from the lateral grey stripes by two (one on each side) somewhat narrower velvety blackish stripes which also reach, anteriorly, to the upper margin of the disc; the two lateral or admedian grey stripes, whose lower margin is usually narrower, somewhat pointed and end about parallel with the base of the wings, usually also gradually increase in width upwards and their upper border expands laterally on the anterior outer third (on the humeral calli) as well as on the entire outer upper third of the disc; this greyish tomentum (forming the pale stripes) extends narrowly on the transverse suture and meets the broad lateral grey stripes, so that the velvety blackish colour shows a design consisting of two large rounded oval or sub-quadrangle side spots, one on each side of the upper third of the disc; the pubescence is longish, erect, fairly tufted, all pale

yellowish and show fine punctures on the grey part of the disc; pleurae concolorous blackish-grey owing to a fairly thin, white tomentum; mesopleura with some similar but softer white hairs; scutellum entirely dull velvety brownish-black with long, erect but by no means dense, yellow pubescence.

Wings hyaline with a more or less dark Prouts brown venation except the Sc pale yellow; r-m cross-vein placed towards the basal fourth or third of 1st M_2 cell; m cross-vein not straight, outwardly bent (feebly) towards the middle; 1st A cell closed at a short distance from the wing margin and consequently with a short petiole; squamulae with a more or less pale yellowish margin and a short whitish fringe; halteres more or less dark cream-buff and the stem always more or less obscure blackish on its basal half; often the knob has an ill-defined brownish spot on the anterodorsal side.

Legs entirely blackish with a very thin inconspicuous white tomentum; the pubescence is very pale yellowish, very short and adpressed as usual except beneath the coxae, trochanters and femora (front) where it is longish, shaggy and white; claws black but reddish-yellow at the base; pulvilli light cream-buff.

Abdomen almost cylindrical or only a little narrower at the apex, and of a uniform dull black colour; the pubescence is long, erect, pale yellowish and like that of the thorax may almost be termed woolly on the sides; venter blackish-grey owing to a fairly dense white tomentum and with the lower border of the sternites pale yellowish-grey; the pubescence is long, woolly, white and shows rather dense, fine punctures; hypopygium (Pl. XXI, fig. 347) black with the dorsal lamellae bearing longish pale yellow pubescence and the ventral lamellae short whitish hairs.

♀: Quite unlike the male, the entire body, except the legs (which are brownish-black) varying from greyish-white to greyish-brown.

Head (Pl. XXI, figs. 348-350) smaller and more rounded than in the male; frons with a conspicuous median oblong or elongate-oval shining black spot, but which is nearer to the median ocellus than the base of the antennae and the margins of the sunken lower half run obliquely outward from the upper margin of the black spot to the lower front corners of the eyes forming a triangular design; the pubescence is as usual shorter and the very short sparse pale yellowish hairs on the frons are scattered mainly on the sides of the upper half and the base of the hairs here, as well as on the occiput (where the pubescence is more evenly dense) show very fine punctures; antennae black but the two first segments usually appearing paler owing to their being clothed with a much more dense tomentum than the third segment.

Thorax with the median black longitudinal stripe on the dorsum which

extends from the upper border to the middle of the disc, divided into two narrow black lines by a broader median grey or greyish-brown stripe; the two lateral black stripes are divided, each, by a fairly broad pale tomented space immediately below the transverse suture so that each stripe is divided into two spots one upper, much shorter, rounded oval spot and one lower, elongate spot not unlike those found in other species of *Usia* (*aurata*, *inornata*, etc.); the pubescence is much shorter, less dense than in the male, very pale yellowish or whitish and shows fine (but not dense) punctures; pleurae with the same tomentum as, but with shorter and sparser pubescence than in the male; scutellum uniformly greyish-white to greyish-brown tomented like the scutum and with very sparse pale yellowish upturned hairs (much shorter than in the male), which are scattered about the margin, and show punctures.

Wings as in the male.

Legs not quite as blackish as in the male, usually being of a more or less dark brownish-black colour and the white pubescence on the ventral side of the femora is shorter and not at all furry.

Abdomen varying from uniformly brownish-grey to greyish-brown, with the upper border of the segments dull black, in which case the dull black band is much broader on the second than on the third segment and rapidly becomes narrower on the subsequent segments until it appears as a mere black narrow line on the front border of the sixth segment; sometimes, also, the second to fifth segments, and more often the second to fourth segments only, possess their anterior fourth or third dull blackish; frequently the second segment only is brownish-black on its upper third; the pubescence is much shorter, less dense and paler yellow (almost whitish) than in the male but owing to its general paler colour (like the thorax) it shows fine punctures; venter grey with the hind margin of the sternites cream-buff and with the whitish pubescence much shorter and sparser than in the male but showing fine punctures; ovipositor apparently yellowish at the tip with very short, dense white pubescence.

♂, ♀ Length of body : 3.0-4.5 mm., of proboscis : 1.3-1.7 mm.; breadth (with wings expanded) : 6.0-7.8 mm.

The female of *ornata* Eng. was described by the same author under the name *tomentosa* (1937, *loc. cit.*), from two specimens in my collection, captured on the same day and in the same locality. I regret now to have omitted to mention to my friend Dr. Engel, at the time of dispatch of these specimens, that one couple was actually caught by me while in *copula*, a fact which, should have eliminated any possible doubt as to the identity of the species and their respective sexes ! I have more than twenty five males and thirty females of this very interesting species all captured

near Burg El-Arab (Mariout) on a sandy path off the « Flowery Way » on March 25th 1927. All the series was obtained in one morning and that is the only record of this species available from Egypt.

***Usia parvula* NOV. SPEC.**

DIAGNOSIS :

A very small species, in which the thorax and abdomen are very similar to those of *elbae* but the head is much smaller and the legs darker (deep black) with the yellowish-red colour of the knees less extensive.

♂ : *Head* (Pl. XXI, figs. 351 and 352) very rounded, and only a little higher than long and broader than long; eyes touching for a very long distance, leaving an unusually small glistening pure white triangular frons below; this glistening white tomentum extends for a very short distance on the sides and below the antennae to form the very short triangular genae, the lower two-thirds of the lower front margin of the eyes being almost in immediate touch with the lateral border of the mouth margin; jowls and lower part of the head as well as the occiput clothed with a fairly dense pure white tomentum; the pubescence is extremely sparse but not very short and consists of a few whitish erect hairs on the back and of even fewer, shorter white hairs beneath; proboscis from less than twice to almost three times the length of the head (including the antennae), black, but its broader base is reddish-yellow beneath; palpi very narrow, thin and cream-buff; antennae black, with the third segment almost twice as long as the first and second segments together and distinctly broader than in *elbae*, particularly about the middle; first and second segments with a few minute yellowish hairs on the dorsal side.

Thorax black, and when seen with the light coming from in front, the anterior third of the disc bears a thin pure white tomentum and shows more or less distinctly the three darker longitudinal stripes; from the lower border of this upper third to about the middle of the disc the tomentum assumes a pale golden-yellow colour with the darker lateral stripes only hardly showing and the entire lower half of the disc appears black; if however, the thorax is examined when the light is coming from the side it will appear as if it was almost uniformly of a pale greyish-yellow colour with a faint iridescent metallic bronze or golden sheen, with paler margins and very ill-defined traces of the three darker longitudinal stripes on the upper half of the disc; the pubescence on the disc is absent, as in *elbae* and on the sides of the anterior half there are a few scattered short, erect, whitish or pale yellow hairs; pleurae concolorous grey and quite bare; scutellum somewhat shining blackish with an extremely sparse and very thin white tomentum and about eight very short upturned pale yellowish hairs around the margin.

Wings hyaline with light yellowish-brown venation; r-m cross-vein placed before the basal third (almost at the basal fourth) of 1st M_2 cell; m cross-vein almost straight, very feebly undulated; 1st A cell closed at some distance from the wing margin and consequently with a longish petiole, as in *elbae*; squamulae with a brownish border and a very short white fringe; halteres pale to dark cream-buff, the stem obscure brown about the base and the knob with a large rounded blackish-brown spot on the outer side, but most of the stem and knob may be pale ivory yellow ventrally.

Legs black, somewhat shining with all the knees reddish-yellow or yellowish-red; extreme base of coxae and apex of trochanters reddish-yellow; the very sparse, minute pubescence is white; claws black but reddish-brown about the base; pulvilli pale cream-buff.

Abdomen rather shining black with narrow cream-buff transverse bands on the lower border of the segments; the pubescence, which is very similar to that of *elbae* is sparse, short, sub-erect on the segments (erect on the sides) and very pale yellowish to whitish; venter as in *elbae*, with minute, soft, very sparse whitish pubescence; hypopygium (Pl. XXI, fig. 353) minute, not at all bulbous; ventral lamellae yellow about the apex; dorsal lamellae dark reddish-brown, paler at the apex; the microscopic erect pubescence on the genitalia is pale yellowish.

♀ : Unknown.

♂ : Length of body : 2.0-2.4 mm., of proboscis : 0.8-1.5 mm.; breadth (with wings expanded) : 4.5-5.3 mm.

Only two specimens of this species are known, both males, collected by my assistant, Mohamed Tewfik Effendi from Wadi Ehameib (West Gebel Elba, South-Eastern Desert) on 28th February 1938.

Usia Tewfiki NOV. SPEC.

DIAGNOSIS :

A small species, distinguished by its characteristic whitish-grey colour, the narrow and very pale cream (almost white) bands on the lower border of the abdominal segments and by the dark reddish-brown legs with the knees, as well as the apex of the tibiae and base of the metatarsi reddish-yellow.

DESCRIPTION :

♂ : Unknown.

♀ : *Head* (Pl. XXI, figs. 354 and 355) black; frons, at the vertex almost as wide as the width of one eye, and together with the occiput, covered with a dense glistening whitish tomentum except on the slope of the frons, beneath the ocellar tubercle where it has a distinct brownish

tinge; the frons also possesses a broad-triangular (but small) shining black spot in the centre, whose base lies almost in the transverse wrinkle, and some very short, sparse, whitish hairs scattered about the sides; the pubescence on the ocellar tubercle and on the back of the head is short, erect, pale yellowish and the occiput is rather densely punctured (and more coarsely so than the frons); behind the jowls the scarce hairs are soft, short and white, as usual; proboscis more than twice the length of the head (including the antennae), black, except at the base where it is yellow, ventrally; palpi yellow and apparently bare; antennae black and the two first segments more densely covered with white tomentum than the unusually broad third segment (seen from the side); when seen from above the third segment is not any broader than the preceding two segments, of the usual sausage-shape and not quite twice as long as the length of the first and second segments together.

Thorax black but covered with a dense whitish tomentum which gives it (like the head and abdomen), its characteristic greyish-white appearance and with the three darker longitudinal stripes on the disc rather ill-defined; the median stripe, whose upper margin is on the upper border of the disc is apparently divided on its entire length by a broad greyish-white stripe (on the anterior half) which is about twice as broad as one of the two darker admedian stripes; the dark side stripes, whose upper border, each, is about half way between the upper margin of the sides of the disc and the transverse suture, has very ill-defined margins and is interrupted by a broad, short, greyish white stripe or spot immediately below the suture; the narrow, somewhat pointed lower border of these side stripes ends at a short distance above the postalar callus; the tomentum about the centre of the disc has a feeble but distinct brownish tinge (similar to that found all around the small elongate-oval black spot on the frons); the pubescence is short, sparse and pale yellowish showing fine sparse punctures; pleurae concolorous grey but darker than the scutum owing to the white tomentum being sparser; mesopleurae with short erect but soft glistening whitish hairs; scutellum uniformly grey like the scutum and with a similar but more up-turned pale yellowish pubescence.

Wings hyaline with a pale honey yellow venation; r-m cross-vein placed on the basal third of 1st M_2 cell; m cross-vein not straight, feebly bent; 1st A cell closed at a distance from the wing margin which is equal to the length of the r-m cross-vein; squamulae with a pale yellow margin and a short whitish fringe; halteres very pale ivory yellow to light ochraceous-buff but the stalk is obscure brownish-black on the basal half.

Legs very dark reddish-brown, almost blackish, with the knees rather broadly yellowish-red as well as the extreme apex of the tibiae and extreme

base of the metatarsi brownish-red; the minute adpressed pubescence is not sparse and all glistening white; claws black but yellow about the base; pulvilli cream-buff.

Abdomen dull brownish-black with a somewhat dense white tomentum extending only on a fairly broad mid-dorsal longitudinal stripe, on both lateral borders and about the apex; the lower border of each segment possesses a narrow, very pale cream colour band; the short pubescence is not dense and very pale yellowish; venter grey with the lower border of the sternites light cream-buff, and with very short, sparse pale yellowish hairs; ovipositor pale yellowish with short erect pale yellowish pubescence.

♀ : Length of body : 2.6-3.2 mm., of proboscis : 1.7-2.1 mm.; breadth (with wings expanded) : 5.4-6.0 mm.

Three female specimens of this species are known so far, two of which were captured at Bir Abrag (on the way between Kom-Ombo and Bir Shala-tein (Red Sea Coast) on the car track running in a South-Eastern direction from the Nile Valley) on February 22nd 1938 by Mohamed Tewfik Effendi and the other specimen originates from Wadi Ibib (some 50 kilometres S.E. of the above mentioned locality) also collected by Tewfik Effendi on March 11th 1928.

LEGNOTOMYIA

(Bezzi 1902, *Zeitschr. f. Hymen. u. Dipt.*, II, 191, 3)

SYNONYMY :

Legnotus Lw. (1855), N. Beitr., III, 41, 6 (*nec* Schiödt, Hemipt. 1848).

Psiatholasius Beck. (1906), *Zeitschr. f. Hymen. u. Dipt.*, VI, 144, f.

TYPE OF THE GENUS :

trichorrhoea Lw. (1855), N. Beitr., III, 41, 80 (*Legnotus*).

Small to fairly large, densely but short pale pubescent flies, of brownish-yellow ground colour, with a very elongated proboscis, the head narrower than the thorax and plump broad-ovate abdomen.

Head narrower than the thorax; eyes in the male very approximated but separated on the frons by a narrow linear incision, and in the female they are widely separated; the facets of the upper half of the eyes are larger than those of the lower half; face produced forward dorsally (to the upper mouth margin) to a length exceeding somewhat that of the two basal segments of the antennae together, but soon retreating again and running parallel on both sides of the mouth opening to form the moderately narrow, long genae; occiput well inflated on both sides of the median furrow, densely pubescent and possessing two distinct occipital callosities, as in *Usia*;

proboscis very long and relatively narrower than in *Usia*; palpi consisting of one segment; first antennal segment as long as, or only a little longer than the second segment; third segment longer than the first and second segments together, and always possessing a short, somewhat dorsally inserted style; at a short distance below this style and about the somewhat more or less obliquely truncated apex of the third segment there are from one to several short or longish stiff bristly hairs which, when numerous, may be arranged in a semicircle.

Thorax usually bearing a dense rich brown to greyish tomentum which conceals the dark blackish-brown ground colour and usually with a dark (divided) median longitudinal stripe and two lateral stripes; the pubescence on the dorsum of the scutum although dense is characterized by being rather short and of uniform length (except in the non-Palaearctic species *striata* Bisch. in which the thorax is described as being almost bare); the pleurae are almost bare except for some more or less dense longish hairs on the upper part of the mesopleura; metapleura bare.

Wings with R_4+R_5 fork very broad and widely open owing to the apical section of R_5 being considerably shorter than the feebly curved R_4 ; vein R_3 may be very much looped up at its end (in *Legnotomyia*) or it may be only moderately curved up at its end (in *Psiatholasius*); r-m cross-vein placed before or towards the middle of 1st M_2 cell; 1st A cell usually upon but sometimes closed at or before the margin; the alula may be small and indented off from the hind angle of the wing or it may be large and hardly indented off from the hind margin of the wing; squamulae with a well developed (but not long) fringe. Halteres fairly large.

Legs slender, as in *Bombylius* but without bristles or spicules and only with very short fine (not dense) pubescence; pulvilli present.

Abdomen broad ovate, plump, with the posterior margin of the tergites and sternites nearly always more or less broadly yellowish, which gives it a transverse banded appearance (more or less conspicuously); the pubescence on the dorsum is similar to that of the scutum but often not quite so dense; male genitalia of the same structure as in *Usia*; female genitalia without spines.

I am unable at present to express an opinion based on sound arguments as to whether the genera *Legnotomyia* and *Psiatholasius* should be separated or not. I agree with Engel (1937, *loc. cit.*, pp. 57-58) as to the non-validity for generic rank of the trifling differences in the position of the style and the longer bristly hairs of the third antennal segment, but I certainly hesitate in amalgamating the two genera when the wing venation (the deep looping or moderate curvature of vein R_3) and the size or development of the alula, are taken into consideration.

The metamorphosis of the members of this genus is unknown.

Only six species are known so far from the Palaearctic Region, two of which occur in Egypt, *fascipennis* Bez. and *Leyladea* which is described here for the first time. The other four species are recorded from Tunis, Asia Minor, Armenia, Greece, Syria, Iraq and Palestine.

TABLE OF SPECIES

- 1 (2) Third segment of antennae with only one or two whitish bristly hairs on the ventral side near the pointed tip; wings hyaline with a pale (often very pale and inconspicuous) oblique sayal brown transverse band immediately before the middle of the wings, always leaving about the basal fourth of the wings hyaline **fascipennis BEZ.**
- 2 (1) Third segment of antennae with three or four whitish, longish bristly hairs arranged somewhat in a semicircle around the ventral side of its truncated apex; wings with the apical half only hyaline and the basal half sayal brown to snuff brown ... **Leyladea NOV. SPEC.**

Legnotomyia fascipennis BEZ.

Bezzi (1925), *Bull. Soc. Roy. Ent. Egypte*, 1924, 181 (*Psiatholasius*); Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 59, 60, I, f. 13).

DIAGNOSIS :

A small to medium sized pale sayal brownish-grey species at once distinguished by the pale (often very pale and inconspicuous) oblique, sayal brown transverse band extending only over the inner half of the wing's basal half and always leaving the basal fourth of the wings hyaline like the entire apical half.

DESCRIPTION :

♂ : *Head* (Pl. XXII, figs. 356 and 357) entirely glistening white pollinose but usually on the face and particularly on the anteriorly produced upper mouth margin, the tomentum has a more or less deep yellowish tinge; the small triangular frons possesses a small elongate oval black spot in the centre of its upper angle and bears some very short, adpressed, glistening white hairs; face clothed with decumbent pale yellowish-white bristly hairs; occiput bearing soft, outstanding pale yellowish-grey to whitish hairs which, on the basioccipital region becomes somewhat longer, sparser and white;

the well raised ocellar tubercle is blackish grey with a few erect whitish hairs and longer than the whitish linear incision which separates the eyes; proboscis long, black; palpi short, dark reddish-brown and bearing some very short brownish hairs; antennae black, with the first segment quite twice the length of the second segment with the very sparse short pubescence (mainly dorsally) whitish or pale yellowish; third segment lanceolate almost pointed at the tip where it possesses ventrally not more than one to two short whitish stiff hairs.

Thorax covered with a tomentum (except on the blackish-brown stripes) which varies considerably in colour from pale chamois or cream-buff to greyish-white and clothed with an upright, not very dense but even, more or less pale cream-buff pubescence; the median dark stripe extends from near the front border (where it is narrower) to a short distance below the middle of the disc, and is divided in its centre by a narrow, more or less, ill-defined, pale longitudinal line; the two brownish-black lateral stripes are darker than the median and extend from a point rather distant from the front border to the postalar calli (where they are narrower); these two dark lateral stripes are usually interrupted by the pale tomented, feebly oblique transverse suture; pleurae black, clothed with a thin sparse tomentum, with the longish tufted pubescence on the upper half of the mesopleura whitish and with some shorter white hairs on the sternopleura; scutellum with a similar tomentum as the dorsum of the thorax and with a similar although longer, more upright (forward-bent) pubescence.

Wings hyaline with a mummy brown venation and with an oblique transverse sayal brown stripe extending from the costa to, or almost to, the lower margin (apex of 2nd A cell) just before the middle and always leaving the basal fifth or fourth of the wing hyaline; this brown stripe is rather variable in strength, being always darker above (on the apex of R cell and about the bifurcation and bases of the R_3 and R_4+R_5 veins) and frequently it is so weak that it is reduced to a feeble pale brown tinge in the position of the usually darker area described above; R_3 vein moderately curved at its end; R_4 vein with a tendency for emitting a stump (sometimes with a stump) at a short distance from its junction with R_5 vein; the section of the vein between M_2 and M_3 (the base of 1st M_2 cell) is remarkably convex and shows a strong tendency to emit a stump at its middle; in rare cases this same vein instead of being rounded, is almost right angular with a short stump emitted at the summit of the angle, or even an extra vein may be emitted from the above mentioned angle and reaching vein M_1 immediately below the r-m cross-vein or at a short distance from it; r-m cross-vein placed just before the middle of 1st M_2 cell; 1st A cell usually open but it may be closed at the margin or sometimes at

a short distance from the margin; alula large and hardly indented off from the hind margin; squamulae whitish with a pale yellow margin and a longish whitish fringe; halteres with the stalks sepia coloured about the basal half and cream coloured on the apical half; knobs naphthalene yellow.

Legs reddish-yellow and brownish-black, with the extremely short, sparse, adpressed pubescence glistening white; femora blackish with their apical third or fourth yellowish-red to reddish-yellow; tibiae reddish-yellow and often obscure brownish about their apical fourth or third; tarsi obscure brownish-black; coxae and trochanters blackish, the former bearing white tomentum like the pleurae and with some longish drooping white hairs; claws brownish-red and black about the tip; pulvilli light to warm buff.

Abdomen with a similar tomentum and pubescence as the dorsum of the scutum but somewhat more greyish in colour (particularly so in the darker chamois forms) which is due to the pubescence being less dense, especially than that found on the upper and lateral margins of the thorax; first segment with the posterior margin ivory yellow to pale cream-buff but not forming a complete band, as it is evanescent on both sides at a short distance from the lateral margins; second to seventh segments with the rather broad, very regular hind border (devoid of any trace of tomentum and pubescence) ivory yellow to pale cream-buff forming pale bands which extend all around the sides and beneath on all the sternites; the pubescence on the venter is sparse, long, suberect and white; male genitalia brownish-red, darker about the tip and clothed with short, suberect, glistening yellowish pubescence.

♀ : Not unlike the male but the abdomen is somewhat shorter and decidedly broader (more plump), the general pubescence is much shorter and the pale bands on the lower borders of the abdominal segments are more conspicuous. *Head* (Pl. XXII, fig. 358) with a sparser and shorter pubescence; frons broad, with a small elongate oval black spot a little above the centre (larger than the spot found in the corresponding position in the male), often with the tomentum pale yellowish, and with very short, adpressed, glistening white hairs on the sides of its much broader upper half; vertex broad, with the large and well raised ocellar tubercle occupying more than its middle third (the distance between its outer margin and the inner margin of the eyes being about as broad as half its width at the base). *Abdomen* with a much shorter, sparse, whitish pubescence and with the tomentum usually extremely sparse and thin, hence the ground colour is much darker than in the male; the lower margin of the second to seventh segments is usually amber or mustard yellow, so that this colour, combined with the much darker ground colour of the segments and owing to the much shorter pubescence makes the transverse stripes much more conspi-

cuous than in the male; first segment with a much paler hind border than the other segments; often only five segments, are visible from the dorsal side; sternites blackish with a yellow hind margin.

♂, ♀ Length of body : 5.4-7.5 mm., length of proboscis : 3.5-4.5 mm.; breadth (with wings expanded) : 10-16.8 mm.

25 ♂♂ and over 60 ♀♀ all from a radius of about 50 kilometres S.W. and S.E. of Cairo, Sakkara, Mazghouna, Kafr Hakimi, Abu Rawash, Borgash, El-Megadla, Mansourea and Helwan, Wadi Gharagid, Wadi Hoff, Wadi Garawy and Wadi Rishrash. My dates extend from 25.4 to 21.7. 1921-40.

Legnotomyia Leyladea NOV. SPEC.

DIAGNOSIS :

A large to medium sized handsome, greyish-snuff brown species, easily known by the presence of the five to seven whitish bristly hairs arranged in a semicircle on the ventral side of the truncated apex of the third antennal segment, and by the wings whose apical half (approximately) is hyaline and basal half more or less dark snuff brown coloured.

DESCRIPTION :

♂ : *Head*. (Pl. XXII, figs. 359 and 360) covered with a glistening tomentum which, on the frons and narrow genae (particularly near the front margin of the eyes) is usually pure white but on the face and anteriorly produced upper margin of the mouth is yellow; occasionally the tomentum on the frons (which does not usually possess the elongate-oval black spot present in the preceding species) is yellowish; the pubescence on the frons consists of some very short adpressed white hairs and on the face of longer, suberect yellowish-white hairs; occiput pale brownish-grey tomented and with a similarly coloured pubescence which, as usual, is white on the basioccipital region; the well raised ocellar tubercle is similarly tomented and pubescent as the occiput and its length is about equal to that of the whitish linear incision which separates the eyes; proboscis long, black, palpi short, narrow, blackish and with a few very short erect yellowish hairs; antennae blackish; first segment twice as long as the second and with some short erect pale brownish-yellow hairs dorsally and laterally (outer sides); third segment a little narrower at the base than towards the middle (where it is rather broader than the first segment) and much narrower again on its apical third where it bears from five to seven stiff whitish bristly hairs arranged in a semicircle on the ventral side of its truncate tip and beneath the small dorsal style.

Thorax with a similar tomentum, stripes and pubescence as in *fascipennis* Bez. but the brown colour is more accentuated and the grey is somewhat less evident; the tomentum on the dorsum of the scutum is light clay colour on the lighter areas and snuff brown to bistre on the dark stripes; median stripe darker than the lateral stripes, extending from the front border (where it is narrower) to a short distance below the middle of the disc, and the narrow pale line which divides it in the centre is broader above (on the upper margin) than below, where it evanesces a little before the middle of the scutum; the dark lateral stripes are less dark than the median stripe and occupy a similar position on the scutum as in *fascipennis*; the longish, very even, rather dense pubescence is of a more or less light clay colour and the longer, more crowded hairs on the lateral margins as well as those on the lower border of the postalar calli are much paler (yellowish-white); pleurae black but covered with a rather dense white tomentum and consequently appearing pale gull grey; the longish, tufted (somewhat woolly) pubescence on the upper part of the mesopleura is whitish; pteropleura with a small tuft of similar white hairs about its middle and the sternopleura with still fewer yellowish hairs; scutellum with a similar tomentum as the dorsum of the scutum and with a similar pubescence, although the more upright, forwardly bent hairs are decidedly longer and more tufted all around the margin.

Wings with a blackish mummy brown venation and with approximately the basal half more or less dark snuff brown and the apical half hyaline; the snuff brown colour which is always darker about its outer extremity than on its inner half (the basal fourth of the wing) has an oblique outer border extending from the Costa, covering the Sc. and over the apex of R_{1+2} and down over the basal half of R_1 cell, over the basal fourth of R_3 cell, over and beyond the r-m cross-vein, over the basal fourth of 1st M_2 cell and over the upper half and the inner apical third of Cu_1 cell; vein R_3 is moderately curved at its end; vein R_4 rarely with a tendency for emitting a stump at a small distance from its junction with vein R_{3+4} ; the section of the vein between M_2 and M_3 (the base of 1st M_2 cell) is only very feebly convex and shows no strong tendency to emit a stump at its middle; r-m cross-vein placed towards the basal third of 1st M_2 cell; 1st A cell usually open but it may be closed at the margin or rarely at a very short distance from the margin (more rarely so than in the preceding species); alula large and hardly indented off from the hind margin; squamulae whitish with a yellowish-brown margin and a whitish fringe; halteres with the stalk sepia coloured about the base and gradually becoming paler to the tip where they are pale cream-buff; knob from pale cream-buff to ivory yellow (almost whitish).

Legs yellowish-red or brownish-red and brownish-black with an extremely short adpressed glistening whitish pubescence which, on the antero-ventral sides of the apical half of the front tibiae and apical third of the hind tibiae is somewhat longer, more dense and yellow; coxae blackish except at the apex brownish-yellow, covered with white tomentum like the pleurae and bearing some longish, drooping whitish hairs; trochanters brownish-yellow, blackish about the tip and with a few short whitish hairs; femora and tibiae brownish-red ventrally but the front pair are somewhat obscured and dorsally the femora are brownish-red and obscured about the tip and the tibiae are blackish but more or less extensively brownish-red about the base (the brownish-red being always decidedly less extensive on the front tibiae); tarsi blackish; claws black and obscure brownish-red about the base; pulvilli pale pinkish-buff.

Abdomen covered with dense clay colour tomentum and a similar (quite as long and as dense) pubescence as the dorsum of the scutum and the hind borders of the second to seventh segments are very narrow and a little paler (cinnamon-buff) so that the banded appearance of the abdomen is unusually inconspicuous; first segment greyish-clay colour with its paler lower margin often extremely narrow; the longish, erect and rather dense hairs composing the pubescence on the tergites are all directed inward in a rather characteristic manner, as if they were brushed inward and thus, about the centre, the tip of the hair of one side cross those of the other side and form a sort of mid-dorsal ridge which is quite evident when the insect is seen from certain angles; this ridge is somewhat accentuated also by the longer hair about the middle being much paler, almost whitish towards the apex; venter blackish and white tomented with the very broad lower margin of the sternites (almost as broad as the sternites themselves) cream-buff to chamois and with long, pendent, but not dense, pale yellow pubescence; the sternites are widely separated from the deflexed ends of the corresponding tergites by a deeply wrinkled cream-buff membrane; male genitalia blackish but yellowish-red to brownish-red about the tip and clothed mostly with short erect yellowish pubescence but the hairs on the rather broad triangular blackish forceps are even shorter and whitish.

♀ Very much like the male.

Head (Pl. XXII, fig. 361) with the tomentum rather more yellowish, particularly on the sides of the upper half of the frons (inexistent in the male) which are clothed with rather numerous, somewhat tufted, decumbent yellowish hairs and the rest of the pubescence on the head (face and occiput) is not shorter or sparser than in the male; ocellar tubercle large, well raised and occupying more than half the breadth of the vertex (the distance between its outer margin and the inner margins of the eyes being less than half its breadth at the base).

Abdomen hardly broader or more plump, the general pubescence is only a little shorter and the pale bands on the lower borders of the abdominal segments are not in any way more conspicuous than in the male; venter as in the male and the tucked in genitalia (visible only from beneath) are reddish-brown, cream-buff about the tip and clothed with short stiff yellowish pubescence.

♂, ♀ Length of body : 7.3-11 mm., of proboscis 6.0-7.3 mm.; breadth (with wings expanded) : 16.7-22.5 mm.

14 ♂♂ and 13 ♀♀ all captured at Ein Gedeirat, near Kossayima between May 24th and 30th, 1937-39. There is no other record of this species from any other part of Egypt.

DISCHISTUS

(Loew, 1855, Neue Beitr., III, 45, IX)

SYNONYMY :

Bombylisoma Rond. (1856), Dipt. Ital. Prodr., I, 164, 8 (*nec Archiv. Zool. Modena*, III, 67, 1863 !).

Bombyliosoma Verr. *apud* Scudd. (1882), Nomencl. Zool., 47.

Bombylosoma Marsh. (1873), Nomencl. Zool., 323.

TYPE OF THE GENUS :

minimus Schrank (1781), Enum. Ins. Austr., 492, 1005 (*Bombylius*), *et* (1803), Faun. Boica, III, 174, 2581 (*Bombylius*).

Small to very large flies with a rotundate or oval body, usually clothed with dense, furry pubescence, closely allied to *Bombylius* and *Efflatounia* but distinguished by the wing venation, the absence of indentation on the hind margin of the eyes, the presence of pubescence or hair fan on the metapleura, the presence of alula on the wings and by normally developed pulvilli.

Head very much resembling *Efflatounia* in shape but the pubescence on the frons and face is much denser, furry, and both regions are much broader than in *Bombylius*. Eyes bare with the facets of the upper half enlarged, very approximated (not touching) in the male but separated by the broad frons in the female and without any indentation at the middle of the hind margin. Proboscis long, thin and horny; palpi consisting of one short thin segment. Antennae, very much as in the two above mentioned closely allied genera.

Thorax oval, well arched and usually with very dense furry (but not long) pubescence and without chaetotactic bristles but sometimes the pu-

bescence is mixed, consisting of very short adpressed hairs (forming an undercoat) and of sparser, much longer erect hairs and distinct preasutural, postalar and marginal scutellar bristles are sometimes present; metapleura hairy.

Wings entirely hyaline or more or less extensively brownish or infuscated about the base and with a venation similar to that of *Efflatounia* but cell R_5 is always more or less widely open at the margin; r-m cross-vein placed well after the middle of 1st M_2 cell; 1st A cell contracted towards the wing margin but distinctly open; alula always present and fringed.

Legs very much as in *Bombylius*; hind femora with well developed spines on the underside, which are said to be absent in the Ethiopian species; claws and pulvilli normally developed.

Abdomen as in *Efflatounia*, less broad than in *Bombylius* and occasionally almost cylindrical; the vestiture corresponds to that of the thorax, in the densely hairy species the hairs are all longer than on the thorax and furry, while in the « non-furry » species the pubescence is also mixed, consisting of a much larger proportion of short, adpressed scaly hairs about the dorsum, and the longer erect hairs being much fewer and usually found on the sides; in these latter « non-furry » species the abdomen usually also possesses long bristles on the lower border of the tergites. Hypopygium very much as in *Bombylius*. Ovipositor with or without spines.

The biology is unknown.

This genus undoubtedly shows closer affinities to *Efflatounia* than to *Bombylius*, although it had been separated by Loew from the latter on the grounds of the wing venation. In *Dischistus* moreover sexual dimorphism is much more pronounced than in *Bombylius*. Engel records seventeen species from the Palaearctic Region and *Dischistus* is also represented in the Ethiopian fauna by a great many species. In Egypt only three species are known to occur, so far, one of which, *D. sinaiticus* is described here for the first time.

TABLE OF SPECIES

- 1 (4) Large to very large species; pubescence on thorax dense and uniform, forming no design, on abdomen longer, also dense and on both regions furry and without bristles (except for long black bristly hair usually occurring on lower border of abdominal segments). Wings with cell R_5 distinctly narrowed at the apex and 1st M_2 cell narrow and elongate. Legs without scaly hairs anywhere.
- 2 (3) Abdomen of male varying from entirely whitish to orange yellow about the basal third (on first two segments), white on rather more

than the middle third (on third to fifth segments) and blackish apically; in female more or less deep orange on the basal third and black elsewhere with two or three more or less apparent transverse white stripes or bands (also formed by white pubescence). Wings tinged more or less dark brown about the base and fore border

- **multisetosus** LOEW and varieties
- 3 (2) Abdomen of male with the pubescence black except about the base whitish to greyish and on the sides of the basal half (more or less) white; in female also black but with the white hairs on the sides near the base extending on lower border of second segment forming a more or less broad transverse white stripe. Wings infuscated about the base and fore border **sinaiticus** NOV. SPEC.
- 4 (1) Small species; pubescence on thorax mixed, consisting of short adpressed hair (scaly in the female) and of longer erect hair (particularly on anterior portion and sides) which are white or very pale coloured on certain small areas on the dorsum forming four spots, on abdomen also mixed but not furry and on both regions with bristly hair or even bristles (but never with any black hair and bristles). Wings with R_5 cell not at all narrowed at the apex and 1st M_2 cell broad, triangular. Legs with short, closely adpressed white scales on femora **trigonus** BEZ.

Dischietus multisetosus LW.

Loew (1857), *Stettin, ent. Zeitg.*, XVIII, 17; Engel (1937), in Lindner, *Flieg. Pal. Region*, 25, Bombyl., 183, 189.

SYNONYMY :

eximius Beck, (1906).

giganteus Villen. (1920).

DIAGNOSIS :

A very large furry fly in which the colour of the pubescence of the abdomen in the male varies considerably from all whitish to orange yellow on the basal segment and whitish elsewhere except around the apex blackish and in the female, the pubescence on the abdomen also varying from more or less deep orange on the basal segment and blackish on the apical two-thirds but with two or three more or less apparent transverse white bands, to whitish-grey on the basal segment and blackish elsewhere with two or three conspicuous transverse white bands.

DESCRIPTION :

♂ : *Head* (Pl. XXII, figs. 262 and 263) entirely covered with a whitish tomentum which is of a pearl grey colour on the frons and occiput but distinctly brownish-grey elsewhere (on face, cheeks and jowls); the pubescence on rather more than the lower half of the frons (between the apex of the narrow blackish line separating the eyes and the base of the antennae) is very sparse, short, soft, erect about the centre and blackish, but soon replaced by whitish hairs on both sides and on the extreme sides, near the anterior eye margins the hairs are even shorter, pure white, adpressed and definitely directed outwards; the pubescence soon becomes much longer, coarser and bushy below and is usually all blackish on the sides of the antennae but is soon replaced on the entire face and jowls by whitish to pale yellow hairs; eyes closely approximated for a distance which is shorter than the length of the ocellar tubercle and the breadth of the latter is about three times the width of the space separating the eyes; ocellar tubercle blackish with a tuft of longish erect black hairs; the pubescence on the occiput varies above from dark brown to pale yellowish, with a row of short, coarse bristly hairs behind the upper hind margins of the eyes which may be brown or blackish, but below it gradually becomes softer, longer and always whitish or pure white; proboscis black, more than twice the length of the head (including the antennae); palpi blackish with sparse, stiff reddish-brown hairs; antennae entirely black; first segment with erect longish, bushy, black, pubescence; third segment lanceolate and almost one and a half times the length of the two first segments together.

Thorax of black ground colour (like that of the scutellum and abdomen) with erect, furry (particularly on the anterior portion and sides) pubescence of uniform length but rather variable in colour; it may be whitish all over with the furry hairs about the centre of the upper third or fourth very pale reddish-yellow or the pubescence may be pale yellowish or of a dirty whitish colour and the furry hairs of most of the upper half of the scutum fulvous; postalar callus with dense furry hairs, those on the upper side being all whitish in the pale forms or varieties and all black in the darker varieties and the much longer very tufted brush-like hairs below the callus vary only from whitish to pale yellow; bristles absent; pleurae covered with a very thin insignificant whitish tomentum and with the long tufted pubescence on the mesopleura and the tuft on the metapleura varying from whitish or pale yellow to chestnut brown ⁽²¹⁾ scutellum with erect pubes-

(21) Bezzi (1925, *loc. cit.*, pp. 168, 170) in his key to the Egyptian species of *Dischistus* (in which he included his new Genus *Efflatounia*) gives as one of the diagnostic characters of the two colour varieties of *multisetosus* Lw. (*eximius* Beck. and *giganteus* Villen.) the colour of the hairs on the pleurae (which he calls « flancs et poitrine »). In var. *eximius* he describes them as greyish and in Villeneuve's variety as black. This is by no means correct.

cence of uniform length but varying in colour from all whitish to all more or less pale fulvous, and always paler at the margin.

Wings hyaline but usually the base and fore border more or less deeply tinged dark brown and with a well marked dark reddish-brown normal venation; 1st M_2 cell narrow, elongate and with the r-m cross-vein placed beyond its distal third; vein R_4 sometimes emits a short stump near its base, in R_3 cell; R_5 cell more or less narrowed apically; alula hyaline or tinged brownish with a dark brown margin and with a rather long whitish fringe on the proximal half; squamae dark brown, with a blackish-brown margin and a long, dense whitish to yellow fringe; halteres with a more or less dark yellowish-red or brownish-red stem and a more or less dark, obscure brownish-black knob.

Legs with all the femora very dark reddish-brown to blackish, the tibiae yellow to reddish-yellow and the tarsi brownish-yellow but obscured towards the apex; coxae with tufted long pendent soft pubescence which is mostly yellowish or reddish-yellow and with a few of the hairs black; on the femora the erect but soft longish pubescence varies from almost all whitish with a few yellow and blackish hairs to almost all blackish beneath and reddish-yellow posterodorsally; tibiae with very short, sparse, closely adpressed white hairs and the minute and also adpressed pubescence on the tarsi is blackish dorsally and reddish as usual on the soles; all the bristles are yellow or brownish-red; posterior femora with the bristles on the ventral side in more than one row; claws black; pulvilli a little longer than half the length of the claws and pale buff.

Abdomen elongate conical, of black ground colour, and with long erect soft, furry pubescence of uniform length but which varies in colour from whitish all over to fulvous on the two first segments (in specimens which possess the pubescence on the anterior half of the scutum of that colour), dirty whitish on most of the consequent segments and chestnut brown about the apex; venter, in the white pubescent specimens also with an equally long but less dense white pubescence all over except some of the hairs around the genitalia brownish about the base and in the « tricoloured » forms the long but not dense pendent hairs on the first three sternites are rufous and on the apical sternites whitish with the hairs bordering the genitalia grey and blackish; genitalia (Pl. XXII, fig. 364) dark reddish-brown to blackish.

♀ : Not much like the male but stouter owing to the head being much broader and the abdomen also broad, ovate, and the pubescence which is less furry is not of uniform length and somewhat different in colour.

Head (Pl. XXII, figs. 365 and 366) very broad owing to the frons being much broader than the breadth of one eye and covered with a somewhat

similar tomentum as in the male but often extremely thin on the vertex and frons, causing these regions to appear much darker, almost blackish; the pubescence is less bushy and somewhat shorter than in the male and varies from whitish all over to pale yellow on the frons and face, and fulvous on the vertex and upper portion of the occiput; pubescence on first segment of antennae a little shorter but much sparser and varying in colour from nearly all whitish with four or five black hairs to nearly all reddish-yellow with a few black hairs, and occasionally it is mixed, consisting of almost equal numbers of whitish and blackish hairs.

Thorax with the pubescence varying in colour as in the male, but showing here distinctly a very sparse undercoat of short adpressed hairs on the dorsum and the longer erect hairs are much less dense.

Abdomen with the pubescence also varying considerably from fulvous on the first segment and blackish on the rest of the abdomen but with more or less dense white hairs forming a narrow transverse stripe on the lower border of the segments, to dirty yellowish-white on the first segment, dark blackish brown elsewhere but with very dense, shorter pure white hairs forming a conspicuous transverse stripe on the lower border of each of the first three segments; the above mentioned erect pubescence is very uneven in length, the white hairs forming the transverse stripes being shorter than the black and, in addition to the latter there are numerous much longer coarse black bristly hairs scattered on the posterior third or half of the second to fifth segments. Ovipositor apparently without spines, black but often yellowish-red about the apex and surrounded by erect blackish hairs.

♂, ♀ Length of body : 11-16 mm.; of proboscis : 5-9 mm.; breadth (with wings expanded) : 19-33 mm.

This beautiful species is fairly common in Egypt and it appears to exhibit two very distinct colour forms or varieties according to the nature of the habitat. I have large series from the Mediterranean Coast (Mariut to Mersa Matruh) of both sexes which all without exception present the « tricolor » form (abdomen of male fulvous at base, whitish and dark chestnut brown apically and of female fulvous at base, and the rest blackish with about three more or less ill-defined, narrow, whitish transverse stripes) while the numerous specimens collected in the Eastern Desert (Wadi Hoff, W. Zohleiga, W. Rishrash, W. Bir-el-Fahm and Ein Gedeirat, Kossayema (North Sinai)) are all pale coloured, i.e. the males all whitish and the females with the abdomen blackish with three broader, much more conspicuous transverse white stripes. My dates extend from the 5th of March to 22nd of April.

Engel (1937, *loc. cit.*; p. 190) follows Bezzi's key (1925, *loc. cit.*, p. 168) for differentiating between the two colour varieties which are designated under the names *multisetosus-eximius* Beck. and *multisetosus-gigan-*

teus Villen. For this purpose the colour of the pubescence on the pleurae and « chest » grey or black as well as the presence or absence of the black hairs at the end of the abdomen, are made use of. I do not agree to Bezzi's interpretation of the colour of the hairs on the pleurae as they are never all black but the second character, for the males is acceptable.

D. multisetosus was originally described from Spanish specimens and is also known from other countries in North Africa.

Dischistus sinaiticus NOV. SPEC.

DIAGNOSIS :

A very large black furry fly closely allied to *multisetosus* Lw. but distinguished from it and *inter alia* by the pubescence of the thorax in the male being hair brown on the dorsum but white on the anterior border and sides and in the female more or less dark tawny olive; by the pubescence on the abdomen in the male black except near the base whitish-grey and on the sides of the basal half white and in the female the white pubescence forming a transverse band on the lower border of the first segment, and by the wings in both sexes infuscated about the base and the fore margin.

DESCRIPTION :

♂ : *Head* of the same shape as in, and similar in all respects to *multisetosus* but the tomentum is light drab; the pubescence is also very similar but somewhat less coarse, a little less bushy and the black hairs forming a transverse stripe on the lower border of the frons (on each side of the base of the antennae) are less numerous and shorter; proboscis black and more than twice the length of the head (including the antennae); palpi black with minute erect reddish-brown hairs; antennae entirely black; first segment with longish, erect black pubescence which is less bushy than in the preceding species; third segment lanceolate and a little longer than the length of the two first segments together.

Thorax black (like the scutellum and abdomen) with erect furry pubescence (particularly on the anterior third and sides) of uniform length, and of a deep tawny olive colour except on the upper border and sides where it is white; postalar callus with a tuft of long black hairs on the upper side and with tufted, only a little longer white hairs beneath, and immediately above the outer side of the callus and bordering the white hairs of the sides there are numerous erect black hairs; pleurae black with the dense tufted long pubescence on the mesopleura blackish but with the tips of many of the hairs whitish or pale grey; metapleura with a small tuft of similarly coloured outstanding pubescence; scutellum with erect and not very

dense pubescence of uniform length which is tawny olive except about the margin white or of a yellowish or dirty white colour.

Wings hyaline but the base and fore border are infuscated, and with a well marked dark chestnut brown normal venation; 1st M_2 cell narrow elongate and with the r-m cross-vein placed on its distal third; R_5 cell narrowed apically; alula infuscated with a blackish-brown margin and with a longish fringe on the proximal half consisting of brownish-grey hairs which gradually become paler and white apically; squamae deeply infuscated with a greyish-black margin and a longish dense fringe, similar in colour to the fringe of the alula; halteres with the knob blackish and a reddish-brown stem.

Legs with the coxae and femora black and the tibiae and metatarsi reddish-yellow to reddish-brown but appearing much darker owing to the very short, adpressed and rather dense black pubescence; four apical segments of tarsi blackish: pubescence on coxae long, tufted, and all black, on the ventral side and sides of femora, long erect and mixed but the majority of the hairs are black and a few are grey or whitish; pubescence on tibiae and tarsi, as stated above, all black except on the soles as usual reddish; spines on ventral side of posterior femora brownish-red and in two or three rows; all the spines and spicules on the tibiae and tarsi are brownish-red; claws black but obscure reddish-brown at the base; pulvilli a little longer than half the length of the claws and pinkish-buff.

Abdomen elongate conical, black, with long, erect, soft furry pubescence of uniform length which is almost entirely black except on the upper border whitish-grey and on the sides white; occasionally the greyish colour on the dorsal side near the base is very indistinct and the white hairs on the sides, are present at most on the two or three first segments; sometimes also, some of the black hairs nearest to the white ones on the sides, are whitish about the apex; venter black with a long soft (but sparse) black pubescence except on the basal sternite where most of the hairs are whitish; hypopygium concealed but appearing blackish from beneath, with shorter erect black pubescence.

♀ : Stouter as usual than the male, owing to the much broader head and abdomen and with the nature and colour of the pubescence unlike that of the male.

Head as broad and of the same shape as that of the female of *multisetosus* and the colour of the tomentum on the upper two-thirds of the frons, the vertex and occiput is as in the male light drab but on the rest of the anterior side of the head it is of a pearl grey or greyish-white colour; the pubescence is shorter and much sparser than in the male and is from almost pure white to very pale yellowish all over except the hairs about the summit

of the head (vertex, ocellar tubercle and upper part of occiput) usually pale brownish; pubescence on first segment of antennae, as in *multisetosus*, a little shorter, much sparser than in the male and either mixed, black and whitish or most of the hairs may be whitish with only a very few (three or four) black.

Thorax with the somewhat shorter and sparser, erect pubescence of a more or less dark tawny olive colour and showing a very sparse undercoat of short adpressed hairs; on the sides of the lower half of the disc the long pubescence is much paler, almost whitish; scutellum with pale yellowish, forwardly directed hairs on the anterior margin, which are shorter than the sparse, somewhat radiating tawny olive pubescence on the disc.

Abdomen with the coarse uneven erect pubescence tufted and furry on the sides only but very sparse (as if rubbed off) on the dorsum and mainly black, except on the sides of the second segment where it is from pure white to dirty yellowish and with similar pubescence extending on the entire lower border of the same segment forming a narrow transverse white stripe; sometimes the pubescence on the middle third of the second segment is greyish-brown and the hairs on the lower border (and sides) are hardly paler so that the pale transverse stripe is very ill-defined; ovipositor yellow apically and when exerted with extremely tufted pale yellow hairs and with short reddish-ellow spines.

♂, ♀ Length of body : 10.5-14.3 mm.; of proboscis : 5.0-6.5 mm.; breadth (with wings expanded) : 20.5-28.8 mm.

Four males and three females, including the types of this species are known so far and all the seven specimens were collected at Rabba and Wadi El-Legaā in Southern Sinai at an altitude between 1650 and 1750 metres.

***Dischistus trigonus* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 168, 169, I; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 183, 194.

SYNONYMY :

pulchellus Aust. (1937), *Bombyl. of Palestine*, 43, 27, fig. 12.

DIAGNOSIS :

A small to medium sized whitish-yellow to yellow fly with a mixed and not furry pubescence in which black hairs are entirely absent, at once distinguished by the long third segment of the antennae, the four shining white or yellowish-white spots (formed by sub-erect hairs of that colour) on the dorsum of the scutum, the presence of bristly hairs or bristles on the

thorax and abdomen and by the wings in which cell R_5 is not at all narrowed at the base and 1st M_2 cell broad, triangular.

DESCRIPTION :

♂: *Head* (Pl. XXIII, figs. 367 and 368) appearing distinctly more rounded or less narrow and broad than in the two preceding species owing to the anterior eye margins when seen from above, extending much more forward on the sides of the frons to a line almost beyond that on which are situated the antennae; eyes not touching but very closely approximated for a distance which is as long as, or rather less than the length of the ocellar tubercle; entire surface of head (except the ocellar triangle) covered with white tomentum which appears greyish-white only about the centre and on the upper narrow portion of the frons, on the outer border of the cheeks and about the margin of the occiput owing to the frons, face and occiput being clothed with glistening white bushy hair, but on the vertex and on the summit of the occiput the pubescence is usually darker, pale brownish to brownish-yellow; proboscis black and about one and a half times the length of the head (including the antennae); palpi more or less dark brownish-yellow with very sparse, short, erect whitish hairs; antennae entirely black but the two first segments appearing from pale to deep neutral grey owing to being covered with whitish tomentum; first segment bearing longish but not dense, erect white hair and the second segment with much fewer and much shorter white hair scattered near the apex; third segment narrow, cylindrical and almost twice as long as the two first segments together.

Thorax black like the scutellum and abdomen but appearing dark mouse grey owing to being covered by a very thin, sparse yellowish tomentum; dorsum of scutum usually with a pair of pale, admedian longitudinal stripes, expanded anteriorly and extending from the front margin to the lower border (prescutellar groove); the longish erect pubescence, which is very sparse about the centre of the disc is much more dense on the anterior border and sides (where it may be termed tufted) and varies in colour from very pale yellowish-grey to greyish-yellow and is always paler on the sides, often whitish; on the pale stripes of the dorsum the erect hairs which are very sparse as stated above, are often shining white or yellowish-white somewhat concentrated and tufted on four small areas, producing the effect of four spots forming a colour contrast with their surroundings as follows (Pl. XXIII, fig. 369) : two almost parallel with the anterior edge of the base of the costa and the two other spots on the lower extremities, one on each inner corner of the postalar callus; the undercoat of very short adpressed hairs (which, together with the longer erect hair described above and constituting

the mixed pubescence of the dorsum) is glistening ochraceous orange; occasionally no signs whatever exist either of the two admedian longitudinal stripes on the dorsum, or of the four paler spots and the pubescence on the disc in such cases, varies from entirely deep olive buff to Isabella colour or buffy citrine and possesses an unusual uniformity in length (for this species) with the undercoat of very short, adpressed hairs of the same colour and extremely sparse; bristles pale yellow, somewhat concealed by the almost as long and dense pubescence on the sides and consisting of about three prealar, three or four supra-alar and five to eight postalar bristles; pleurae pale neutral grey with long dense, tufted yellowish pubescence on the mesopleura, very sparse, scattered, very short whitish hairs on the sternopleura and the metapleura with long outstanding yellowish hairs (forming the fan); scutellum with a mixed pubescence like the dorsum of the scutum consisting of long sparse and evenly scattered, upturned yellow bristly hairs and an undercoat of very short adpressed glistening ochraceous orange hairs.

Wings (Pl. XXIII, fig. 370) entirely hyaline or all tinged tawny olive but often with three more or less apparent small blackish-brown spots, one on the base of the stem of the fork R_4+R_5 (at the point of bifurcation of R_3 and R_4+R_5) and the area immediately below it (in R cell), one on the r-m cross-vein and one on the vein closing the lower distal extremity of 1st M_2 cell; cell R_5 not at all narrowed at the apex and showing no tendency to do so as the veins R_5 and M_1+2 run parallel with each other to the wing margin; r-m cross-vein placed well after the middle of 1st M_2 cell and the latter is short, broad and somewhat triangular (remarkably so if compared with the two preceding species); all the veins are dark brown but paler at the base and the Sc and humeral cross-vein are yellow; alula hyaline to pale tawny olive, with a dark brown margin and a well developed fringe which is usually whitish or pale yellowish-grey; squamae pale cream buff to Isabella colour with a yellow margin and a well developed white fringe; halteres cream buff to light ochraceous buff with the knob usually paler about the apex.

Legs with all the coxae and trochanters neutral grey like the pleurae and bearing longish, shaggy but sparse white pubescence; femora black but the distal extremities of the front and middle femora are extensively yellow to cinnamon buff like the tibiae and most of the tarsi, and the hind femora only at the extreme tip obscure reddish-brown; front and middle femora with longish soft white hairs on the posterior side and all the femora are clothed with rather dense, very short, closely adpressed white scales; bristles on ventral side of hind femora in more than one row and varying in colour from reddish-yellow to dark reddish-brown; spines and spicules on tibiae

and tarsi of the same colour as the bristles on the femora; posterior tibiae often obscured about the apex and the three or four apical tarsal segments obscure blackish-brown with the apical ventral spicules blackish; the pubescence on the tibiae and tarsi is sparse, minute and white; claws with the basal half reddish-yellow, more or less dark, and the apical half black; pulvilli pale pinkish cinnamon.

Abdomen conical and clothed with a similarly coloured mixed pubescence as the thorax but the hind margins of the segments are rather untidily fringed with long pale yellow or whitish bristly hairs producing a somewhat serrate effect when viewed in profile; the short, closely adpressed ochraceous orange hairs of the undercoat is fairly densely scattered over the dorsum and the long outstanding hairs are mainly found on the deflexed sides of the tergites and these are usually quite tufted on the sides of the basal half and from whitish to yellowish; venter neutral grey and sparsely clothed with whitish pubescence, most of which is very short and adpressed and some very long, soft and pendent; hypopygium blackish except about the apex reddish-brown and with sparse, short, erect yellowish hairs.

♀ : Rather like the male but broader, with a rounded ovate abdomen and with the erect pubescence shorter than in the male. Frons (Pl. XXIII, figs. 371 and 372) at the vertex as broad as one eye; vertex and upper half or more of the frons clothed with erect ochraceous buff or ochraceous tawny hairs with an undercoat of very short, adpressed hairs of a more vivid glistening ochraceous orange colour; anterior third or border of frons more or less distinctly clothed with glistening white hairs like the face below, and sometimes these whitish coloured hairs extend up on the centre, almost to the front border of the ocellar tubercle; the erect pubescence on all the summit of the head is darker than in the male. The paler admedian longitudinal stripes on the thorax as well as the four white or pale spots described in the male are more often apparent and the longer pale pubescence on the deflexed sides of the abdomen sometimes stretch right across the dorsum and rather hides the undercoat of very short adpressed ochraceous orange hairs; ovipositor black, apparently without spines and clothed with very sparse short, soft whitish hairs.

♂, ♀ Length of body : 3.6-8.5 mm., of proboscis : 1.5-4.2 mm.; breadth (with wings expanded) : 7.6-16.5 mm.

Bezzi (1925, *loc. cit.*, p. 169) before giving the original description of *D. trigonus* says that this small species possesses the general aspect of Ethiopian species of the group *seriatus* Wied. and is closely allied to *tripunctatus* Macq.; he also states that it is closely allied to *D. lutescens* Lw. from Syria. I feel almost convinced that *pulchellus* Aust. from Palestine is identical with *trigonus* Bez. I must admit that Bezzi's description is

too brief and lacks somewhat in precision; for instance no mention is made of the characteristic narrow cylindrical shape of the third segment of the antennae, nor of the design of the thorax and its undercoat of very short adpressed hairs. Consequently, it is not in the least surprising to me that Mr. Austen has not been able to identify his Palestinian specimens as our common *D. trigonus*. This author compares specimens with *D. notatus* Eng. described from only four females from Spain and states that it resembles that species in some respects, especially as regards the thoracic markings but that it (*D. pulchellus*) has a considerably longer proboscis and third antennal segment, in addition to well developed pulvilli. Dr. Engel, in his remarkable revision of the Palaearctic Bombyliidae, which appeared only a few months later than Austen's study on the Bombyliidae of Palestine, in 1937, has already made a few important corrections to Bezzi's description of *D. trigonus* based on specimens I had sent him from Egypt. This latter author compares our species with *flavibarbus* Lw. as he drops *lutescens* Lw. to the rank of synonymy (*flavibarbus* Lw. = ♀ *lutescens* Lw.).

D. trigonus is one of our commonest Bombyliids in Egypt. I possess more than 100 males and over fifty females, most of which collected in the neighbourhood of Cairo: Abu Zaabal, Abu Rawash, Kerdasah, Kafr el-Dems, Megadlah, Kafr Hakim, Mansouriah, Mazghouna, Sakkara and Dahshoor. I have also captured it near Ismailia (Geneifa and Serapeum) and in Northern Sinai (El-Arish and Ein Gedeirat, Qossayema). It also occurs (but apparently less commonly) in the Mariut district. My dates extend from the beginning of March to the end of April. The very few specimens (2 males and 1 female) originating from Mariut (Burg el-Arab, 5.IV.1921) show the pubescence on the frons and face in the male pale yellow, the thorax with no design and spots and the pubescence, which is unusually uniform in length is buffy citrine; in the males also the pubescence on the abdomen is decidedly more tufted (more uniformly so) than usual and is very pale yellowish-white. In two other males from North Sinai (Ein Gedeirat, 20.IV.38) out of a series of seven males and eight females from the same locality, the entire pubescence of the body is very pale greyish-yellow or dirty whitish and of about the same nature as that of the Mariut male specimens, also with the thorax exhibiting no sign of paler stripes and spots. Finally a single female, in my collection, captured by me in Wadi Edeib (Gebel Elba, 23.I.1929) presents black bristly hairs on the head and black bristles on the thorax and abdomen; also the wings, whose venation is typical except for the position of the r-m cross-vein (placed on about the middle of 1st M_2 cell) are entirely hyaline and the reddish-yellow colour is much more extensive on the distal portion of the femora, with all the spines and spicules on the legs black. It appears quite evident

that this specimen does not belong to this species but as it is unique and possesses characters which do not all agree with those of other described species, I feel that I cannot use it as a type for the erection of a new species merely for the sake of preventing more confusion in the future.

D. trigonus is not recorded from any other country, so far, except Palestine (*D. pulchellus* Aust.).

ACANTHOGERON

(Bezzi, 1925, *Bull. Soc. Roy. Entom. Egypte*, 1924, 164).

TYPE OF THE GENUS :

sener Meig. (1820, *System. Beschreib.*, II, 216, 47 (*Bombylius*)).

Medium sized to very large densely furry *Bombylius*-like flies, distinguished by the rather elongate and ovate body, the distinctly thickened first segment of the antennae, and by the wing venation in which the r-m cross-vein is always placed after the middle of 1st M_2 cell.

Head broader and less rounded (particularly so in the female) than in *Bombylius*, and broader than the thorax; eyes of male, in which the facets of the upper third are only very slightly enlarged, approximated but never quite touching and the space separating them is usually shorter than the length of the ocellar tubercle but variable in width, as it may be as broad as the breadth of the ocellar tubercle or as narrow as the anterior ocellus; in the female the frons at the vertex is very broad, the eyes being separated by a space which is as broad (approximately) as the width of one eye or twice that width; face shorter than in *Bombylius* and clothed with a beard which is dense on the sides and much less so, or even quite sparse above (somewhat as in *Geron*); proboscis and palpi as in *Bombylius*; antennae somewhat distant one from another at the base with the first segment distinctly thickened; third segment spindle-shaped or elongate conical, usually narrower than the first segment, with a ring-shaped constriction near the base as in *Conophorus* and its length only slightly exceeds that of the two first segments together; style very well developed.

Thorax : dorsum with a dense even long pubescence as in *Bombylius* but the metapleura are sometimes bare.

Wings with a venation similar to that of *Bombylius* but occasionally R_5 cell open at the wing margin (*A. grandis* nov. spec.); r-m cross-vein placed more or less distal to the middle of 1st M_2 cell; vein R_4 often emitting a short stump in R_3 cell, a short distance after its bifurcation with R_5 vein; alula small; squamae very well developed and showing a strong tendency towards being divided into thoracic and wing squamulae; halteres normal.

Legs as in *Bombylius* but the anteroventral row of bristles on the apical half of the hind femora are often absent and clothed below with long hairs above (some of which may at most be bristly).

Abdomen clothed with a long dense erect pubescence, which is longer than that of the thorax, often forming a somewhat long tufted fourrure, like in *Anastoechus* and there are usually strong bristles on the lower border of the segments; hypopygium small and generally concealed; ovipositor possessing strong spines.

This genus was erected by Bezzi (*loc. cit.*) on the sole diagnostic character of the presence of spines on the ovipositor of the female. Such a generic distinction alone however is non-valid since it is now definitely proved (see Engel, 1937, *loc. cit.*, p. 198) that the ovipositor in the genera *Bombylius* and *Systoechus* always bears more or less strongly developed spines. The generic validity of *Acanthogeron* had nevertheless to be admitted, on the ground that it is readily separable from *Bombylius* and from other closely related genera by characters afforded by the first segments of the antennae, and the position of the r-m cross-vein. Now even these characters are by no means quite constant as in the rich material from Egypt I have found at least two transitional forms, *Blanchei* *nov. spec.* and *grandis* *nov. spec.* in which the first segments of the antennae is very insignificantly swollen. On the other hand, the open R_3 cell in *grandis* makes this form distinct from *Bombylius* and from the other closely allied genera. Furthermore the decidedly short, small wings, in relation to the comparatively stout, bulky body in *auripilus* *nov. spec.*, shows very close affinities with Austen's Genus *Lissomerus* from Palestine (Austen, 1937, *Bombyl. of Palestine*, p. 33).

Engel (1937, *loc. cit.*, pp. 272-273) records some eleven Palaearctic species of *Acanthogeron*; by dropping Bezzi's *pernivens* to the rank of synonymy and by adding the three new species described from Egypt, the number of species becomes thirteen.

Nothing is known so far on the early stages of the representatives of this genus.

TABLE OF SPECIES

- 1 (6) General pubescence of body dirty whitish-yellow, greyish-white or pure silvery white, with or without black hairs; proboscis entirely dull black.
- 2 (3) Pubescence of body dirty greyish-white in the male, and dirty yellowish-grey in the female; R_3 cell wide open at the margin; very large species (13.0-14.3 mm.) **grandis** **NOV. SPEC.**

- 3 (2) Pubescence of body almost all silvery white, at most pale greyish-white or pale yellowish-white on the upper part of the thorax only; R_s cell always closed before the margin; medium sized to very large species (6.2-14.5 mm.)
- 4 (5) Pubescence on head (face and basal segment of antennae) with numerous erect black hairs mixed with the white pubescence; first antennal segment conspicuously swollen; large to very large species (10.5-14.5 mm.) **separatus BECK.**
- 5 (4) Pubescence on head pale yellowish and pale or deep olive buff without black hairs anywhere; first segment of antennae very inconspicuously swollen at the apex, hardly broader than the second segment; medium sized species (6.2-8.0 mm.) .. **Blanchei NOV. SPEC.**
- 6 (1) General pubescence of body pale golden brown or deep golden yellow without a trace of black hairs anywhere in both sexes; proboscis brownish-yellow or reddish-yellow except on the apical third (or less) black; medium sized species (8.1-10 mm.) .. **auripilus NOV. SPEC.**

Acanthogeron auripilus NOV. SPEC.

DIAGNOSIS :

A small or medium sized furry fly with rather short, small wings, easily distinguished from all the other hitherto known Palaearctic species by the pale golden brown pubescence on the entire body without a trace of black hairs anywhere, the reddish-brown or brownish-red proboscis which is blackish on the apical third or less, the apical half or so of the scutellum reddish-brown, and the pale yellowish-red legs with the apical tarsal segments only, obscured, blackish.

DESCRIPTION :

♂ : *Head* (Pl. XXIII, figs. 373 and 374) black but covered with a thin dense pale golden yellow dust; frons bare on the median longitudinal furrow and above (on the space between the upper, inner eye margins) but clothed elsewhere with long erect tufted pale golden brown pubescence, although a few shorter, sub-erect, apparently paler golden yellow hairs occur on the upper borders of this pubescent area; face clothed with dense erect golden yellow pubescence which is about as long as that on the frons and without a differently coloured « frame » on the sides above or trace of black hairs; viewed in profile the broad cheeks appear greyish-yellow and the jowls whitish with erect soft yellowish-white pubescence but this pubescence soon becomes golden yellow again on the lower part of the occiput; the latter bears numerous short, closely adpressed golden yellow elongate scales all along the orbits and dense erect but not very long golden yellow hairs on the upper third which form a high but irregular or uneven collar owing to the

hairs behind the summit of the head being much longer than the rest of the hairs below; ocellar tubercle moderately elevated, brownish-black and bearing a dense tuft of erect pale golden yellow hairs; eyes separated by a distance which is about as broad and as long as, the breadth and length of the ocellar tubercle, respectively; proboscis brownish-red or brownish-yellow except on about the apical third (or rather less) black and about one and a half times (or rather less) the length of the head (including the antennae); palpi apparently absent; antennae black but the two basal segments densely covered with a thin yellow dust which gives them an obscure brownish-yellow appearance; first segment distinctly swollen towards the apex, about three times the length of the sub-globate second segment and clothed with dense erect pale golden brown pubescence above, on the sides and below (shorter than that of the face and frons); second segment with some very short yellow hairs above; third segment dull black with the ring-shaped constriction near the base very small but apparent, elongate conical and about as long as the two first segments together; style short but thick yellowish-brown at the tip and ending by a minute thin blackish rod or hair.

Thorax dull black, covered with a thin sparse yellow dust and clothed with long erect golden yellow pubescence the hairs of which are distinctly dark brown at their tips and hence of a golden brownish appearance; this pubescence in addition to being very even as if shorn is very dense on the anterior part and on the sides of the upper half of the disc but sparse elsewhere, where it hardly obscures the ground colour; moreover this pubescence on the sides, above the wing bases and the longer adpressed tuft on the postalar calli are shimmering golden yellow like the metapleural tuft and the outstanding tufted hairs on the sides of the base of the abdomen, and which are evident from above; two brownish pre-alar bristles, a little longer than the dense hairs of the pubescence and a few very long yellow bristly hairs on the postalar calli; pleurae neutral grey, clothed with dense long erect pubescence, which is light orange on the upper parts, in front of the wing base and pale yellowish elsewhere; metapleura with a tuft of long dense pale golden yellow erect hairs; scutellum blackish on the basal half (approximately) and yellowish-brown or brownish-yellow on about the apical half and with a pubescence which is similar to, and merged into that of the thorax and with some long pale yellow marginal bristly hairs.

Wings (Pl. XXIII, fig. 375) entirely hyaline with a dark cinnamon brown venation, except about the base and the Sc yellow; vein R_4 with or without a short stump in R_3 cell; r-m cross-vein placed a little or well after the middle of 1st M_2 cell; R_5 cell remarkably narrow and elongate, $M_1 + 2$ being unusually straight a short distance from its base (near the apex of 1st M_2 cell) and joining vein R_5 at a very short distance from the wing

margin; apex of 1st M_2 cell obtuse; the stout yellow basal part of the costa with dense short pale yellow bristly or scaly hairs above and with some short yellow bristles in front; alula with a minute pale brownish fringe which is only a little longer and pale yellow near the basal margin; squamae very pale yellowish with a thick pale yellow margin and a dense longish pale yellow fringe; halteres reddish-yellow on the stem; with a cream buff knob and rather difficult to trace in the long dense pubescence.

Legs entirely pale reddish-yellow or pale brownish-red (or even brownish-orange) except the apex of the trochanters, ventrally, and the two apical tarsal segments blackish; coxae and trochanters with dense long pale golden brown pubescence; front femora with whitish sub-erect but not long pubescence ventrally, which do not extend to the apex and the middle and hind femora with very sparse short adpressed whitish or yellowish pubescence; middle femora with an anteroventral row of about five short reddish bristles and the posterior femora with a similar row of about six longer reddish bristles on the apical half, in addition to the few shorter ones about the tip above and in front; tibiae and tarsi with minute glittering pale yellowish adpressed pubescence and with all the spicules and spurs pale yellow; claws reddish-yellow except the apical third black; pulvilli about half the length of the claws and pale yellowish.

Abdomen dull brownish-black obscured by very dense, furry, long pubescence which is longer than that of the thorax but of the same pale golden brown colour except about the apex where it becomes paler, almost whitish, and like the thorax without a trace of black hairs anywhere, venter deep neutral grey with the lower border of the sternites rather broadly yellow and with a long, even, very soft but not very dense pale yellowish pubescence; hypopygium brownish-red with short erect reddish-yellow pubescence.

♀: Very similar to the male, but with numerous strong yellow bristly hairs (almost true bristles) on the lower margin of the abdominal segments giving to the abdomen an inconspicuous transverse banded appearance and the dorsum of the abdomen also shows a sparse undercoat of short decumbent and erect dark golden yellow hairs. *Head* (Pl. XXIII, figs. 376 and 377) covered with dense golden yellow dust as in the male; frons at the vertex quite one third (or even somewhat more) the breadth of the head because the distance between the eyes is about four times the breadth of the ocellar tubercle and clothed with a uniformly pale golden brown or deep golden yellow pubescence which is rather coarse and untidy looking because of being formed of numerous short decumbent and adpressed scaly hairs scattered all over and of erect long bristly hairs sparsely scattered on the upper half and quite dense or tufted on both sides of the lower half; face beard and the rest of the head as in the male. Thoracic chaetotaxy a little stronger

than in the male, the pre-alar bristles being about four and the postalars longer and stronger. *Wings* and *legs* as in the male. Ovipositor reddish-yellow about the apex and with dense soft erect yellowish pubescence; spines concealed.

♂, ♀ Length of body : 8.1-10 mm., of proboscis : 3.3-4.2 mm.; breadth (with wings expanded) : 14-16 mm.

Two males and four females, including the types are known so far: the two males and three of the females were collected by my assistant Shafik Mostafa Effendi at Ein Gedeirat (Qossayema, North Sinai) between April 13th and 22nd, 1938 and the fourth female was captured by me in Wadi El-Legab, South Sinai, altitude 1750 metres on April 25th 1939.

***Acanthogeron Blanchei* NOV. SPEC.**

DIAGNOSIS : *Acanthogeron* sp. nov. (figs. 378 and 379).

A small to medium sized furry fly, distinguished by the entirely white pubescence on all the body except on face in the male deep olive buff and on the frons and face in the female dark olive buff and without any black hairs anywhere, by the first segment of the antennae which is only very slightly swollen about the apex and by the eyes in the male, which are separated by a space which is narrower than the anterior ocellus and which is almost as long as the length of the ocellar tubercle.

DESCRIPTION :

♂ : *Head* (Pl. XXIV, figs. 378 and 379) black but covered with a tomentum which is greyish-brown on all the front parts (frons and face) and somewhat paler, very pale brownish-grey on the occiput; frons almost bare in the median furrow and above, and clothed with some erect but forwardly directed and not long yellowish-white hairs on the sides of the lower half (approximately); seen from the front these pale hairs are sub-erect, and close to the eye margins some are quite adpressed while the upper third of the frons, on each side of the median furrow bears a few very short adpressed pale yellowish hairs; face clothed with a sparse, rather short olive buff pubescence forming the beard, which is framed above and on the sides by whitish erect hairs; the pubescence on the lower part of the head is erect but soft, not long and all white; occiput with short, adpressed, pure white scaly hairs about the sides and above (on the orbits) and with erect fairly long white pubescence on the upper third, which, when viewed from in front form a stout high colour above and the hairs of this pubescence are very feebly but distinctly tinged yellowish at their bases; ocellar tubercle elevated and bearing a tuft of short whitish hairs; eyes very approximated and separated by a very narrow line which is narrower than the breadth of the anterior ocellus and not quite as long as the length of the ocellar

tubercle; proboscis dull black and not quite twice the length of the head (including the antennae); palpi very short, blackish; antennae black but the two first segments are covered with a thin pale brownish-grey dust; basal segment sub-cylindrical, only very feebly swollen apically, not quite three times the length of the small sub-globate second segment and clothed with erect but not long and not dense pale yellowish pubescence all over; third segment narrow conical with the small ring-like constriction near the base almost inexistant and only a little longer than the two first segments together; style minute, blackish with the terminal sensory rod or hair whitish.

Thorax clothed with long erect soft almost all pure white pubescence but which is not dense enough on the disc as to obscure the dull greyish-black ground colour; when seen from above the anterior portion is somewhat whitish-grey or of a dirty whitish colour but on all the sides and posterior portion the pubescence is glistening silvery white and when viewed from the side it is uniformly white all over; there is no trace of black hairs anywhere; two short weak yellowish-brown pre-alar bristles but difficult to detect owing to being concealed by the more dense and equally long pubescence on the sides and about five whitish weak but long postalars; pleurae greyish-brown tomented and clothed with long dense pure white pubescence all over but on the mesopleura it is decidedly more tufted and the erect white hairs are distinctly yellowish about their bases; metapleura with a tuft of long erect white pubescence; scutellar pubescence similar to, and merged into that of the thorax and with a row of weak but long whitish marginal bristles.

Wings entirely hyaline with a well-marked brownish-black venation except at the base, the Sc, and the short stem of the R fork yellow or yellowish-brown; vein R_4 rarely emitting a short stump in R_5 cell; r-m cross-vein placed a little after the middle of 1st M_2 cell; the stout basal part of the costa densely covered with short adpressed coarse pale reddish-yellow hairs above, with some longer whitish hairs near the base below, and bearing some short but strong reddish-bristles (almost small spines) in front; alula with a short whitish fringe which is a little longer on the basal margin; squamae hyaline, with a thick dark brown margin and a dense, long whitish fringe; halteres deep cream buff except the stem obscure dark brown about the base, and rather difficult to trace in the long dense pubescence.

Legs with the coxae and trochanters black except the apex of the former and base of the latter reddish-yellow; front and middle femora blackish except the apical third reddish-yellow; hind femora reddish-yellow and somewhat obscure brownish near the apex; all the tibiae reddish-yellow but the front pair are somewhat darker and the middle and hind tibiae obscure brownish about the apex, dorsally; tarsi blackish-brown except the

metatarsi brownish-yellow towards the base; coxae and trochanters with long whitish or very pale yellowish hairs; femora with long white hairs on the basal half ventrally and with dense, short, closely adpressed, white or pale yellow elongate scaly hairs; middle and hind femora each, with an anteroventral row of about four short weak pale yellowish bristles on the apical half and the bristles on the hind pair are only a little stronger than those on the middle femora; tibiae with minute closely adpressed glistening pale yellowish elongate scales and with the rows of spicules and longer apical spurs yellowish; tarsi with a pubescence similar to that on the tibiae and also with the very short bristles yellowish; claws reddish-yellow on the basal half and the rest black; pulvilli very small, short, yellowish-white.

Abdomen greyish-black, obscured by long dense soft furry pure white pubescence all over which is of uniform length and longer than that on the thorax and on the sides and apex glittering silvery white as in *separatus*; no trace of black hair anywhere; venter greyish-brown tomented like the pleurae but the lower borders of the sternites are broadly brownish-yellow or brownish-red and clothed with erect soft pure white pubescence which is shorter than that on the dorsum, sparse about the middle and more dense and tufted on the sides; hypopygium (Pl. XXIV, fig. 380) reddish-yellow with some short and some longer erect yellowish hairs.

♀: Extremely like the male but the general colour of the pubescence on the body is not of such a pure white tone and the abdomen, in addition to the long erect whitish pubescence which includes numerous long strong whitish bristly hairs (almost real bristles) on the lower margin of the segments and which gives it a slight banded appearance, bears as well, numerous short, decumbent whitish hairs. *Head* (Pl. XXIV, figs. 381 and 382); frons at the vertex almost one third the breadth of the head because the distance between the eyes is quite four times the breadth of the ocellar tubercle; frons clothed with fairly dense short decumbent dark olive buff pubescence everywhere and with numerous long erect, similarly coloured hairs except about the centre; face as in the male but the pubescence of the beard a little darker, being dark olive buff like that on the frons but a little shorter; antennae with the erect hairs on the basal segment also dark olive buff. *Thorax* usually of a dirty yellowish-white colour above, about the upper third approximately. *Wings* and *legs* as in the male but the anteroventral row of pale yellowish bristles on the hind femora are about six. Ovipositor greyish-black but cream buff about the apex and clothed with soft erect but not dense, pale reddish-yellow hairs; spines usually concealed.

♂, ♀ Length of body : 6.2-8 mm., of proboscis : 3.5-4.1 mm.; breadth (with wings expanded) : 11.2-17 mm.

One male and four females (including the types) of this species, are known so far, captured by me in Wadi el-Legaâ near St. Catherine Monastery (South Sinai) at an altitude of 1750 metres, between April 10th and 28th (1939-40).

Acanthogeron grandis NOV. SPEC.

DIAGNOSIS :

A very large furry species, distinguished by the entirely dirty yellowish-white pubescence on all the body except for the erect pubescence on the first antennal segment and the « frame » of the beard dark reddish-brown and for a very few black bristly hairs on the postalar calli, by the first segment of the antennae which is very little swollen, by the open R_5 cell and by the eyes in the male, which are separated by a space quite as broad as the anterior ocellus and almost as long as the ocellar tubercle.

DESCRIPTION :

♂ : *Head* (Pl. XXIV, figs. 383 and 384) covered with a thin dust, which is almost pure white on the frons and occiput but brownish on the entire face and genae; frons clothed with a very sparse short, soft, sub-erect whitish or yellowish-white pubescence; face beard formed of fairly dense erect but not long whitish hairs and on the sides, above by erect dark brown hairs of about the same length as the hairs of the beard, and which contracts downwards (the brown frame) and extends to the lower part of the cheeks; jowls clothed with dense soft yellowish-white pubescence but on the rest of the lower part of the head the pubescence is tufted and white; occiput with an erect dirty whitish pubescence which is longish on the upper third and forms a sort of high but untidy collar; ocellar tubercle not much elevated and bearing a tuft of comparatively short erect and rather soft brown hairs and with a very few (about four) of the forwardly directed ones on the front part whitish; eyes approximated and separated by a space which is as broad as the breadth of the anterior ocellus and almost, or about as long as the length of the ocellar tubercle; proboscis dull black and about two and a half times the length of the head (including the antennae); palpi very narrow, blackish and in addition to the usual minute dark pubescence, with two or three erect long whitish hairs dorsally; antennae black and bearing a very thin whitish dust which is more evident on the two basal segments; first segment cylindrical, hardly broader than the short cup-shaped second segment and clothed with longish erect pubescence which is very dark brown, almost blackish above and mixed, paler brown with a few whitish hairs on the sides and below (where it is also somewhat shorter); third segment elongate conical and about one and a half times the length of the two first segments together; style minute, blackish but with a comparatively long reddish-brown terminal rod.

Thorax dull black, obscured by very dense, erect but not long, dirty greyish- or yellowish-white pubescence all over, except for a few erect blackish hairs on the postalar calli; no chaetotactic bristles; pleurae clothed with long dense tufted pale brownish, or whitish-yellow pubescence except on the hind parts (including the metapleura) almost bare; scutellum dull black, with a pubescence similar to, and merged into that of the thorax and without marginal bristles or bristly hairs.

Wings entirely hyaline with a Prout's brown venation except the Sc paler; vein R_4 emitting a short pale yellow stump in R_3 cell; R_5 cell open at the margin; r-m cross-vein placed on, or even beyond the distal third of 1st M_2 cell; the stout basal part of the costa with numerous short reddish-bristly hairs above and dense blackish bristles in front; alula with a longish whitish fringe on the basal margin and bare elsewhere; squamae light cinnamon brown, with a thick darker margin and a long dense dirty pale yellowish-white fringe; halteres with the stem brownish- or yellowish-red and the knob blackish.

Legs with the coxae, trochanters and femora black, the tibiae light liver brown except the two extremities blackish, the metatarsi reddish-brown but obscured toward the apex and the rest of the tarsal segments blackish; coxae and trochanters densely clothed with long dirty pale brownish-yellow hairs; anterior and middle femora with mixed blackish, brown and dirty whitish pubescence on the basal two-thirds and the middle femora with one or two short weak yellowish bristles anteroventrally, a little after the middle; hind femora with the mixed pubescence similar to that on the front femora but present only on the basal third and with numerous short but fairly strong pale brownish bristles ventrally in three or four rows extending nearer to the apex than to the base and some similar but rather shorter ones about the tip above and in front; all the spicules and longer spurs on the tibiae and all the small bristles on the tarsi are pale brownish or yellowish; claws black; puvilli almost as long as the claws and pale brownish-grey.

Abdomen conical, dull black but covered with a thin brownish dust and obscured by long but not very dense erect dirty greyish-white pubescence, which is of uniform length and colour all over; the soft hairs forming this pubescence are of a pure white colour but distinctly greyish towards the base, hence their dirty greyish-white appearance and no trace of black hairs exist anywhere; venter dull black with the lower border of the sternites Prout's brown and clothed with numerous long, erect soft white hairs which are obscure brownish about the base; hypopygium dark reddish-brown, almost blackish with erect short and longer reddish-yellow hairs.

♀ : Very similar to the male but the general pubescence on the thorax

(which is entirely devoid of black hairs) and abdomen is somewhat darker, being light greyish olive and the abdomen bears numerous long erect black hairs on the posterior border of the segments.

Head (Pl. XXIV, figs. 385 and 386) : frons at the vertex broader than one third the breadth of the head because the distance between the eyes is almost five times the breadth of the ocellar tubercle; frons clothed with sparse erect soft and not long pale yellowish pubescence which becomes sub-erect or decumbent, whitish and hardly more dense below and on the sides of the base of the antennae; face beard as in the male but without the darker « frame » on the sides above; the tuft of soft erect pubescence on the ocellar tubercle all pale yellowish and the pubescence on the first segment of the antennae is yellowish and only include about one or two dark brown hairs above.

Wings as in the male.

Legs with the posterior femora dark reddish-brown and the brownish-yellow ventral bristles arranged in two rows, an anterior (of about ten bristles) and a posterior row (of about three); pulvilli much shorter than in the male, being not more than one third the length of the black claws.

Ovipositor blackish but reddish-yellow about the apex, with erect blackish and some yellowish hairs; spines concealed.

♂, ♀ Length of body : 13-14.3 mm., of proboscis : 6.5 mm.; breadth (with wings expanded) : 25.5-26.5 mm.

Only one male and one female (the types) of this species are known. The male was collected by my assistant Shafik Mostafa Effendi at Ein Gedeirat (Qossayema, North Sinai), 15.IV.1938, and the female was captured by me on 11.IV.1921, in Wadi Hoff. The latter, unfortunately has most of the pubescence on the abdomen rubbed off, but several black hairs are present on the lower borders of the segments with some of the whitish-grey hairs of the pale pubescence so that we may well conclude that in fresh, unrubbed specimens a transverse banded appearance, such as that found in the female of *A. separatus*, might be quite apparent.

***Acanthogeron separatus* BECK.**

Becker (1906), *Zeitschr. f. syst. Hymen. u. Dipt.*, VI, 102, 36 (*Bombylius*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 165; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, III, 15, 150, 180 (*Bombylius*); Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, *Bombyl.*, 276.

SYNONYMY *Acanthogeron separatus* Beck. 1906

pernivens Bez. (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 165; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, III, 15, 142, 179

(*Bombylius*) ; Engel (1937), in Lindner : Flieg. Pal. Region, 25 Bombyl., 275.

Talboti Ségué (1930), *Mém. Soc. Sciences Natur. Maroc*, XXIV.

DIAGNOSIS :

A large very furry fly, easily distinguished in the male by the eyes which are separated by a distance as broad as the ocellar tubercle, the light olive grey pubescence of the thorax with some black hairs on the sides of the anterior half (arising from the upper part of the mesopleura) and by the long glittering silvery white fourrure on the abdomen without any black hairs, and in the female by the slightly darker olive grey pubescence on the thorax with some black erect hairs interspersed among the pale pubescence on the sides of the lower part of the disc (in addition to those on the sides of the upper half, as in the male) and the more or less numerous long erect black bristly hairs on the lower border of the segments of the abdomen which gives the latter usually, a distinct transverse banded appearance.

DESCRIPTION :

♂ : Head (Pl. XXIV, figs. 387 and 388) covered with a pale greyish-brown tomentum which gives it a light drab or light greyish-olive appearance; frons almost bare about the centre above and with some short very sparse erect pale greyish-olive hairs about the middle, below, but on the sides, in contact almost with the inner eye margins the pubescence, which by no means may be termed long, is dense, sub-erect and glistening pale yellowish or pale golden yellow; face clothed with very dense erect but not very long and soft silvery white hairs but above, on the sides of the base of the antennae the white beard is « framed » with black hairs and some of these possess yellowish-white tips or even a very few may be entirely reddish-brown; these black hairs of the « side-frame » never extend down to the lower eye angles and all the lower side of the head as well as the lower part of the occiput bear dense, long, soft pure white pubescence; occiput clothed on the upper third (approximately) with rather long, very erect and fairly dense pubescence, the hairs of which are pale brownish-yellow about their bases and much paler apically, so that when viewed from in front, this sort of high collar forms a kind of yellowish halo around the upper part and this aureole or halo is sometimes very evident against the white background of the thoracic pubescence; ocellar tubercle with a fairly dense tuft of mixed longish erect black hairs and softer brownish-yellow or reddish-yellow hairs; proboscis dull black and twice (or rather more) as long as the head (including the antennae); palpi blackish with minute blackish and whitish hairs all over except beneath, where it bears long dense

erect white pubescence (similar, in length and colour to that of the beard); antennae blackish but the small ring-like constriction at the base of the third segment is often yellowish or reddish-yellow like the style, and the two basal segments covered with a fairly dense pale brownish-grey dust: first segment elongate sub-ovoid, distinctly inflated about the middle where it is broader than at the base and tip and clothed with dense long very erect pubescence which is almost always all black on the entire outer half but very pale yellowish-brown on the inner sides and which intermingle beneath with the white pubescence of the beard; when viewed from in front the long pale yellowish-brown hairs on the inner side near the base give the impression as if arising from the centre of the frons; not unfrequently also, several of the hairs on the outer half of this first segment are brownish or whitish; second small cup-shaped segment with some very short or minute black bristly hairs dorsally; third segment narrow, elongate conical or spindle-shaped, about as long as the two first segments together and with the small ring-like base black or from yellowish to reddish-brown; style usually black but sometimes reddish-yellow or reddish-brown.

Thorax dull black, covered by a thin brownish dust but obscured by very dense, long, erect olive grey pubescence on the disc and glittering whitish on the sides of the lower half and base; this pubescence, besides being all equal as if shorn and appearing entirely pale, always includes a few black hairs scattered on the sides of the upper half, in front of the three or four blackish or dark reddish-brown weak bristles in the position of the pre-alars and, in addition to these, several other black hairs often occur on the outer sides of the upper part which in reality belong to the pubescence of the mesopleura; occasionally also a few black hairs may occur on the sides of the lower half of the disc, in front of the very long, dense, depressed tuft on the postalar callus whose hairs are usually yellowish about the base and glistening silvery white apically; pleurae grey with very long furry pubescence on the upper parts except the posterior region almost bare, and this pubescence on the anterior third, whose hairs are mostly pale yellowish-grey or of a dirty pale yellowish colour, are directed outwards and a little forwards and upwards, always include more or less numerous, equally long erect black hairs⁽²²⁾, and on the middle third (of the upper parts) it is all whitish or very pale yellowish with all the hairs directed backwards;

(22) The late Professor Bezzi (1925, *loc. cit.*) in his short diagnostic description of *A. pernix*, the type of which is in my collection, committed a serious error in the so-called distinctive character of his *nov. spec.* in writing «Robust species, similar to *separatus*, but distinguished by the total absence of black hairs on the pectus (poitrine)....». This is quite wrong, as black hairs are present in Bezzi's type as well as in all the other 30 males examined by me from Egypt and my above description entirely agrees with specimens identified by Dr. Engel (after comparison with Becker's types) as *Acanthogeron separatus* Beck., and returned to me.

all the lower parts of the pleurae are clothed with long soft but sparse whitish pubescence; metapleura bare; scutellar pubescence similar to and merged into that of the thorax and with few longer (but hardly coarser and bristly) hairs about the margin.

Wings entirely hyaline with a well marked blackish-brown venation; vein R_4 always emitting a more or less short stump in R_3 cell, at a short distance after its bifurcation with vein R_3 ; r-m cross-vein usually placed on the distal third but sometimes a little after the middle, of 1st M_2 cell; the stout reddish-brown basal part of the costa bearing numerous short reddish and whitish bristly hairs above and dense blackish-brown coarser bristly hairs (almost spines) in front; alula with a sparse minute yellowish fringe which is hardly longer on the margin; squamae brownish-yellow with a rather thick blackish margin and a very long, dense, glittering white fringe, but whose hairs are usually yellowish about the base (like those of the postalar calli); halteres small and difficult to trace in the long dense pubescence, brownish-yellow or yellowish-brown on the stem but the knob yellowish-red or chamois.

Legs blackish-brown or blackish except the tibiae and sometimes the base of the metatarsi more or less dark reddish-brown or yellowish-brown; coxae with fairly dense long whitish or pale yellowish pubescence; femora bearing dense, short adpressed cream buff or olive ochre coarse hairs as well as long, erect but sparse whitish hairs on the basal half (approximately) of the ventral surface and sides and followed by some erect black hairs ventrally but which do not extend to the apex; often the pale long pubescence on the femora includes many black hairs and on the posterior pair the black hairs are coarser, somewhat bristly and are situated anteroventrally; tibiae bearing also dense short, closely adpressed pale yellowish elongate scaly hairs and with numerous short but strong black bristles which are even more numerous and longer on the posterior pair; tarsi with minute black pubescence and numerous short black bristles but which become very numerous (dense) and decidedly stouter and longer on the soles; claws reddish-brown on the basal half and the rest blackish; pulvilli very short, about one third the length of the claws and reddish-brown or brownish-yellow.

Abdomen black but much obscured all over by very dense, long (longer than that of the thorax) erect, but soft glistening silvery white pubescence, resembling a thick rich fourrure and without any black or dark hairs anywhere; venter blackish-brown with the lower margin of the sternites chamois and with sparse longish (much shorter than that of the dorsum) erect or sub-erect whitish pubescence and with most of the hairs greyish or pale yellowish near the base; hypopygium (Pl. XXV, fig. 389) blackish about the base and obscure reddish-brown apically and with soft erect longish pale reddish-yellow or yellowish pubescence.

♀ : Not much unlike the male because of a darker yellowish-grey colour

and the abdomen is never uniformly clothed with a thick glittering silvery white fourrure owing to the erect pubescence, consisting of long whitish (but shorter than in the male and pale dirty yellowish about the base) and of short dirty yellowish hairs, concentrated on the lower border of the segments where also, always, more or less numerous long black hairs or bristly hairs occur, and which give the abdomen a distinct transverse banded appearance.

Head (Pl. XXV, figs. 390 and 391) covered with rather dense brownish-grey or greyish-yellow dust which gives it a drab grey or pale ecru drab appearance; frons at the vertex much broader than one eye as the distance between the eyes is almost five times the breadth of the ocellar tubercle; frons clothed with long but not dense, erect mixed black and very pale reddish-yellow pubescence, the black hairs being much longer than the pale ones and mostly situated about the centres of the sides of the upper half, while the yellowish hairs are scattered (and very sparse) over the middle and outer borders of the upper half and become much more numerous and sub-erect below, on each side of the base of the antennae; face, occiput and antennae as in the male.

Thorax of a somewhat darker dirty yellowish-grey (or grey olive) colour than in the male and with more numerous erect black hairs on the sides of the upper half of the disc (in addition to the equally more numerous black hairs belonging to the propleura and mesopleura) and many long black hairs on the sides of the lower half and posterior margin; scutellum with some or many of the marginal and premarginal long bristly hairs, black.

Wings and legs as in the male.

Abdomen with the general pubescence rather different from that of the male as stated above; ovipositor (Pl. XXV, fig. 392) with long dense, erect glistening golden red hairs and two admedian longitudinal rows of about ten long blackish spines each, which are bent outwards apically.

♂, ♀ Length of body : 10.5-14.5 mm.; of proboscis : 5.5-7.3 mm.; breadth (with wings expanded) : 21-24.5. mm.

Bezzi (1925, *loc. cit.*) in his extremely short description of *A. perniciosus* after comparing it with Becker's species *separatus* and after basing one of the main distinctive characters between the two species on a wrong statement (see foot-note p. 265) writes : « Les pattes sont plus claires. Tandis que chez le mâle l'abdomen est couvert de poils blancs, très fins et souples, égaux partout, chez la femelle chaque segment porte des poils noirs sur le milieu, et une rangée de poils blancs le long du dos postérieur; l'abdomen paraît ainsi distinctement bandé, ce qui ne se voit pas chez les femelles des autres espèces du genre ». The position and general arrangement of the black and white hairs on the abdomen of the female as given by this author is not correct as may be seen from my description which is based on Bezzi's

own type and a long series of specimens originating from two very different localities in Egypt. Moreover the specimens of Bezzi's *pernivcus* (in both sexes) from our collections, sent to Dr. Engel and identified by him as *Acanthogeron separatus* Beck. (♂, ♀) after comparison with Becker's types confirms my opinion as regards the synonymy of *A. separatus* with *pernivcus*.

A. separatus is a fairly common inhabitant of both the Mariut and South Eastern deserts. I have frequently captured it in these two very different localities (in the Mariut, from Amria to Hamnam, and in the S.E. desert, on the Suez Road, Wadi Hoff and Bir El-Fahm between February 25th to the middle of April) almost every spring. The males are extremely difficult to catch and when poised apparently motionless in mid air they glitter in the sun like a ball of silver; they could also be easily detected by their shadow or by their shrill humming note, but they dodge any ordinary stroke of a net; the females, like in many species of *Bombylius*, are more easily captured while hovering in front of low lying blossoms, and some I took on the mauve flowers of the sweet scented Stock (*Matthiola humilis*).

This species is also known from Spain, the Canary Islands, Syria and Gafsa (North Africa); it is surprising that it has not been hitherto found in Palestine and in other countries in North Africa.

SYSTOECHUS

(Loew, 1855, Neue Beitr., III, 34, 3)

TYPE OF THE GENUS :

sulphureus Mikd. (1796), Monogr. Bombyl. Bohem., 52, 11, Tab. III, f. 11 (*Bombylius*).

Densely furry, *Bombylius*-like flies in general appearance but readily distinguished from the representatives of this genus by the antennae and by the wing venation (the position of the r-m cross-vein, being placed close to the base of 1st M_2 cell), and from the genus *Anastoechus* by the presence of numerous black hairs on the face (in *Anastoechus* the pubescence on the head is generally entirely white or yellow, black hairs being rare, or absent) and the 1st M_2 cell which is shaped as in *Bombylius* (in *Anastoechus* this cell is very obtuse at the end).

The genus agrees in all main respects with *Bombylius*. Antennae with the third segment shorter, as long as, or only slightly longer than the two first segments together.

Thorax as in *Bombylius* but the chaetotactic bristles are usually somewhat better developed, pre-alar, postalar and marginal scutellar bristles being present, the first generally hidden in the dense long pubescence; metapleura with long tufted hairs.

Wings usually feebly infuscated and tinged brownish only at the base and on the fore margin; the venation as in *Bombylius* and *Anastoechus* but the r-m cross-vein is always placed very close to the base of 1st M_2 cell and the apex of the latter is less obtuse than in *Anastoechus*.

Legs with the bristles on the ventral side of the hind femora and the spicules on the tibiae as in *Bombylius* but rather less numerous; claws and pulvilli well developed.

The pubescence on the abdomen is long and tufted but less so than in *Anastoechus*, and there are usually fairly strong bristles on the lower border of the tergites but which are never so well developed and do not produce a decidedly serrate effect as do those found on the abdomen in the above mentioned genus. Male genitalia and ovipositor very much as in *Bombylius* and other closely related genera.

According to Lundbeck (1908, Dipt. Danica, II, 126) the larvae of *Systoechus* like those of *Anastoechus* live in the egg pods of locusts; *S. oreus* was bred from *Oedipoda atrox* (Riley 1880, Sec. Rep. U. S. Entom. Comm. for 1878-79, 261, pl. XVI, et 1881, Amer. Nat., XV, 445, Pl. VI, f. 1-3), *S. autumnalis* and *leucophaeus* from *Staurotrotus maroccanus* (Stepanov, 1880-81, Verh. Nat. Gess. Charkow, XIII, et XIV), and *S. (Anastoechus) nitidulus* from the same (Chimkewitch, 1883, Horae Ent. Ross., XVIII). Moreover Portchinsky (1894, Les parasites des criquets nuisibles en Russie, St. Petersburg), bred *S. autumnalis* and *S. nitidulus* from the same *Staurotrotus*. The larva hibernates as full grown and it pupates and develops to imago in the following summer. In South Africa (Cape Province) *S. Marshalli* Param., has been bred from the egg pod of a grasshopper, *Acrotylus deustus* Thunb. (Paramonow, 1931, Mém. Acad. Sciences Ukraine, No. 5, p. 239). The pupa, as figured by Stepanov (1882, Trudy Kharkoff, XV, Tab. I) in general appearance, including the teeth on the head capsule, agrees with that of *Bombylius*.

Engel (1937, loc. cit., p. 278) gives a table for the distinction of some seven Palaearctic species of *Systoechus* besides eight varieties. One of these, *gradatus* Wied. apud. Meig. occurs commonly in Egypt in several varieties. The only other species of this genus of which three specimens (all males), I have found in South Sinai, appears, so far as it is possible to judge from descriptions, to be distinct from any Palaearctic *Systoechus* at present known.

TABLE OF SPECIES

- 1 (2) Eyes in the male separated by a distance which is almost as broad as the width of the ocellar tubercle; pubescence on face comparatively short sub-erect, mostly pale yellow with sparse black hairs or black bristles. *gradatus* WIED.

- 2 (1) Eyes in the male separated by a distance which is a little narrower than the anterior ocellus; pubescence on face long, erect, bushy and mostly black, with some yellowish hairs intermixed; abdomen with numerous long (longer) erect black bristly hairs on the lower border of the segments. *sinaiticus* NOV. SPEC.

Systoechus gradatus WIED.

Weideman *apud* Meigen (1820), Syst. Besch., II, 207, 30 (*Bombylius*); Gim m. (1847), Bull. Soc. Imp. Nat. Moscou, XX, 3, 222, 16 (*Bombylius*); Loew (1855), Neue Beitr., III, 38, 75; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 281, f. 121.

SYNONYMY :

cinereus Meig. (1804), Klass., I, 185, 14 (*Bombylius*), et (1820), Syst. Besch., II, 212, 40 (*Bombylius*).

leucophacus Wied. *apud* Meig. (1820), Syst. Besch., II, 215, 44 (*Bombylius*); Loew (1855), Neue Beitr., III, 38, 73; Schiner (1862), Fam. Austr., I, 63, et (1883), *Horae ent. Ross.*, 1883, 11; Stepan. (1881), Ver. Nat. Ges. Kark., XV, 9.

quadratus Lw. (*lapsus*) *apud* Eng. (1937, loc. cit.).

var. gallicus Villen. (1904), Feuil. jeun. Natural., 4e Sér., XXXIV, 70 et 72; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 282.

var. lucidus Lw. (1855), Neue Beitr., III, 38; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 282.

var. tesquorum Beck. (1916), Annal. Mus. Nat. Hung., XIV, 44, 11; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 282.

var. validus Bez. (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 166; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 283.

DIAGNOSIS :

A medium sized to very large *Bombylius*-like fly, whose abdominal four-rure is of a deep primuline yellow or light citron yellow colour without black bristles, or black bristle-like hairs, easily distinguished in the male by the eyes, which are separated by a distance almost as broad as the ocellar tubercle, and by the comparatively short, sub-erect pale yellow pubescence on the face which usually includes only a few brown or blackish hairs intermingled

DESCRIPTION :

♂ : Head (Pl. XXV, fig. 393) black, covered with a rather dense but thin brownish-grey dust; frons usually clothed above with some erect, by

no means long, blackish, dark brown or reddish-brown hairs, and with shorter sub-erect more tufted glistening pale yellow bristly or scaly hairs on the lower half or so with a few blackish hairs intermingled, but sometimes all the erect hairs above and the shorter depressed ones below are dark reddish-brown; face clothed with rather short, fairly dense, coarse sub-erect pubescence which is mostly glistening pale yellow and in which are interspersed a few erect blackish hairs about the middle part, but on all the lower border (upper and side margins of the mouth) most of the hairs are dark brown or blackish; viewed from the side this pubescence appears more depressed and ends a little below the lower half of the side cheeks, leaving the lower third of the latter and the upper part of the jowls almost bare; the pubescence on the rest of the jowls and on the lower part of the occiput is short, erect and pale yellowish; occiput with dense short, closely adpressed more or less pale yellow scaly hairs or elongate scales all about the orbits and with coarse erect, longish primuline yellow or pale yellow hairs forming a sort of high but uneven collar behind the upper third of the head; ocellar tubercle with a tuft of erect but not long or dense hairs (about as long as the longest ones on the upper half of the frons) which are all pale yellowish, mixed black and yellowish, or all dark brown, almost blackish; eyes separated by a distance which is only a little narrower than the breadth, and about as long as the length of the ocellar tubercle; proboscis dull black and rather more than twice the length of the head (including the antennae); palpi blackish with minute erect blackish pubescence and three or four elongate yellowish hairs beneath; antennae black but occasionally the third segment appearing obscure reddish-brown at the base and about the apex and the two first segments bearing a thin greyish or brownish-grey dust; the erect pubescence on the first segment is somewhat shorter above than beneath and all pale yellowish or mostly yellow with a few blackish or brown hairs intermixed; second segment with some minute erect blackish hairs about the apex; third segment conical and about as long as the two first segments together; style minute reddish-yellow or blackish.

Thorax brownish-black, obscured on the anterior portion and sides by very dense erect deep primuline yellow or pale citron yellow pubescence but on the rest of the disc the pubescence (also entirely yellow) is sparse, frequently as if rubbed off and hardly obscures the ground colour; this pubescence on the upper part and sides of the disc is very even, as if shorn and uniform in colour except on the postalar calli where the adpressed tuft consists of longer, shimmering paler yellow hairs (including several long pale bristles); chaetotactic bristles all yellow; about three or five pre-alars, occasionally dark brown; sometimes two short supra-alars; about eight or ten very long, strong postalar bristles; pleurae greyish-black, clothed with

erect pale yellow or yellowish-white pubescence which is dense and tufted on all the upper parts including the metapleura and much less so on the lower parts; scutellum blackish but often obscure very dark reddish-brown about the apical half or so, with a pubescence similar to, and merged into that of the thorax and with numerous long, strong marginal and some premarginal yellow or pale yellowish bristles.

Wings (Pl. XXV, fig. 394) hyaline or more or less feebly infuscated except about the base and the Sc cell tinged brownish-yellow; venation normal; the stout blackish basal part of the costa bearing numerous pale yellow short scaly hairs above and dense longer yellow or orange scaly hairs in front as well as numerous strong black spines; alula with a short yellow or brown fringe which becomes much longer and pale yellow near the base; squamae brownish-yellow or reddish-yellow with a thick darker margin and a long dense pale yellow or whitish fringe; halteres reddish-brown or brownish-yellow on the stem with the knob usually whitish-yellow or cream buff.

Legs usually very dark reddish-brown or blackish with the apex of the femora paler (brownish-red or reddish-brown); coxae with long erect but not very dense, pale yellow or yellowish pubescence; femora with dense short closely adpressed elongate scales which are whitish except about the apical third yellowish or orange, and the middle and hind pair with some longer erect whitish hairs ventrally about the base; middle femora with one short black anteroventral bristle towards the middle and a posteroventral row of two to five very short brownish bristles; hind femora with an anteroventral row of about eight black bristles of which the one near the apex longer than the others and a postero-ventral row of about five very small brownish bristles and a much longer black one on the same row near the apex; tibiae with very small, closely adpressed whitish elongate scales and with all the spicules and spurs black; tarsi with minute blackish pubescence and black bristles ventrally; claws black but sometimes obscure reddish-brown about the base; pulvilli cream buff and about half the length of the claws (or rather more).

Abdomen elongate ovate, black and obscured by very dense and erect, long, uniformly deep primuline yellow to pale citron yellow pubescence, and with some short decumbent yellow hairs forming a transverse row a little below the middle of each segment; this long pubescence includes many coarse yellow bristly hairs, almost true bristles, mostly situated along the lower border of the segments, which gives the abdomen a somewhat transversely ridged effect but no black bristles or black hairs occur anywhere; venter blackish with the lower border of the sternites cream buff or the two basal sternites black, the third to fifth brownish-red but blackish before the apex and all the lower border of the sternites pale reddish-yellow;

the pubescence on the venter is sparse but long erect and uniformly pale yellow or yellowish; hypopygium (Pl. XXV, fig. 395) reddish-brown with sparse short erect reddish-yellow hairs.

♀: Extremely like the male but the bristles on the thorax and abdomen are more numerous and stronger.

Head (Pl. XXV, figs 396 and 397); frons at the vertex less than one third the breadth of the head because the eyes are separated by a distance which is hardly three times the width of the ocellar tubercle; frons with some brown or blackish erect hairs scattered unevenly about the upper half (or rather more) which also bears a few much shorter decumbent glistening yellow hairs intermixed, and similar (glistening decumbent yellow) but much more numerous hairs cover all the lower half although a few longer erect yellowish hairs may occur on the sides of the upper border of this lower half; tuft on ocellar tubercle usually formed of erect black hairs and with some shorter erect or decumbent yellowish hairs intermixed; face, etc., as in the male.

Thorax with numerous pre-alar, supra-alar and postalar bristles.

Wings and legs as in the male.

Abdomen with the yellow bristles on the lower border of the segments more numerous and stronger than in the male. Ovipositor reddish-yellow about the apex; spines usually concealed by the dense felt-like pubescence.

♂, ♀ Length of body : 10-15 mm., of proboscis 5.5-8 mm.; breadth (with wings expanded) : 17.6-28.5 mm.

Concerning this species, according to specimens sent from Egypt, and which are now in my possession, the late Dr. Bezzi (1925, *loc. cit.*, p. 166) writes : « *Systoechus gradatus* Meigen 1820, *var. validus* nov., ♂, ♀. Wadi Hoff en Avril. Longueur du corps 12-13 mm., avec environ 30 mm. d'envergure. Il présente tous les caractères de *gradatus*, mais il est de taille beaucoup plus grande; il rappelle le *S. robustus* Bezzi, qui a le front du mâle plus large, le troisième article des antennes rougeâtre à l'extrémité et les pattes entièrement rouges ».

S. gradatus varies somewhat as regards size and colour, although in the large series in my collection from various parts of Egypt the deep primuline yellow colour of the pubescence on the thorax and abdomen is rather constant.

If size alone is to be made use of as a criterium for distinguishing between varieties, our usual form should be *var. validus* but smaller forms are by no means rare. This species is very common in Egypt in all the Wadis South-East of Helouan (Wadi Hoff, W. Dar El-Maskhara, W. Zohleiga, W. Gendali, W. Digla, W. Garawi, W. Rishrash, W. Askhar (North Galala),

and W. Araba) and many of the Wadis in South Sinai (W. El-Legaa, W. Garagnyia, altitude 1750 metres). My dates extend from March 17th to the middle of August. *S. gradatus* is an extremely rapid « flyer » and first rate hoverer and it can defy the best efforts at capture, especially between 10 and 12 a.m. when the sun has warmed up the rocky sides of the Wadies. I have found them more shy than the species of *Bombylius*, as, contrary to these, if you have been unlucky with your first stroke of the net at capturing a specimen, you may consider that particular specimen as lost for good, for it will not return fearlessly again and again on the same spot as would have usually been the case with *Bombylius*.

This species and its four varieties is known from other parts of North Africa, Southern Europe, Asia and Syria.

Systoechus sinaiticus NOV. SPEC.

DIAGNOSIS :

A medium sized or rather small *Bombylius*-like species, whose abdominal fourrure is of the same deep yellow colour (primuline or citron yellow) as that of *gradatus* but with many long erect black bristly hairs on the lower margin of the segments and also easily distinguished by the much narrower space separating the eyes of the male and by the long, erect, tufted, predominantly black hairs on the face.

DESCRIPTION :

♂: *Head* (Pl. XXV, figs. 398 and 399) covered with a fairly dense, thin greyish-yellow dust and clothed with long erect rather tufted black hairs which are as dense all over the frons as on the face but between these two areas, on each side of the base of the antennae there are numerous short sub-erect or decumbent glistening yellowish or pale reddish-yellow hairs; these short pale hairs also extend on the sides of the lower third of the frons and a few long erect black hairs occur even in the narrow space separating the eyes; on the face there are numerous erect pale yellow or yellowish-red hairs intermingled with the black ones mentioned above, but on all the upper part they are shorter than the latter and below, particularly all along the margin of the mouth, they are quite as long and their tips are bent inwards; seen from the side, the long erect black hairs extend all the way down the side cheeks and the pubescence on the jowls as well as on the rest of the lower side of the head is soft erect but not long and all whitish; occiput with numerous adpressed yellow elongate scales all about the orbits and with short erect coarse primuline yellow hairs on the upper third which merge into the similarly coloured pubescence on the thorax;

ocellar tubercle with a tuft of long erect exclusively black hairs; eyes separated by a narrow space which is narrower than the breadth of the anterior ocellus and quite as long as the length of the ocellar tubercle; proboscis black and about twice the length of the head (including the antennae); palpi very short, black with minute erect blackish pubescence; antennae black but the two first segments bearing a very thin sparse whitish dust which gives them a greyish-black appearance; basal segment clothed with rather dense long erect mixed black and reddish-yellow hairs all over; second segment with sparse, very short erect mostly black hairs about the apex; third segment elongate conical and somewhat shorter than the two first segments together; style well developed, black with the terminal sensory rod or bristle reddish-yellow.

Thorax dull black, obscured by dense erect similarly coloured pubescence as that of *gradatus* but more brownish (old gold) and decidedly longer, and shimmering pale yellow on all the sides; about two short yellow pre-alar bristles which are very difficult to detect owing to the dense equally long pubescence; four or six long pale yellow postalars, also hardly detectable but for their length; pleurae greyish-black, clothed with long erect, soft, rather dense pale yellowish pubescence (including the metapleura) but on the lower parts hardly dense; scutellum blackish but obscure very dark reddish-brown about the apex, with a pubescence similar to, and merged into that of the thorax and with numerous long erect yellow bristly hairs.

Wings very feebly infuscated (almost hyaline) except about the base and the Sc cell tinged Prout's brown and with a well marked deep mummy brown normal venation; the stout blackish basal part of the costa bearing dense short pale yellow scaly hairs above and numerous longer pale yellow bristly hairs as well as strong black bristles in front; alula with a short brownish fringe which becomes longer (quite long) and pale yellow near the base; squamae Prout's brown with a thick blackish margin and a dense long glittering pale yellow fringe; halteres brownish-yellow or brownish-red with the knob paler about the apex.

Legs with the coxae and trochanters black clothed with long dense erect yellowish-white pubescence; femora dark reddish-brown except about the apex or apical third reddish-yellow, clothed with short, dense, closely adpressed whitish scaly hairs and with longish erect yellowish-white hairs on the basal half ventrally; hind femora with an anteroventral row of about five black bristles on the apical half, and three or four similar ones in a sort of circle near the apex; tibiae reddish-yellow or brownish-yellow and usually somewhat obscured towards the apex, the posterior pair being more extensively so than the front pairs; tarsi blackish; tibiae with minute yellowish pubescence and with all the spicules and apical spurs black;

pubescence and bristly hairs on the tarsi blackish; claws black; pulvilli almost as long as the claws and light olive buff.

Abdomen black, obscured by very dense, erect, long, deep primuline yellow pubescence and with numerous longer erect black bristly hairs on the lower margin of all the segments except the basal segment; these very long black bristly hairs on the second segment occur only on the sides, on the third segment across almost the entire lower border (except the centre), and on the rest of the segments they become even longer towards the apex and form a complete transverse row; venter black, somewhat shining with the lower border of the sternites Isabella colour and with long erect but sparse pale yellow pubescence; hypopygium chestnut red with short soft mixed pale yellow and blackish pubescence.

♀ : Unknown.

♂ Length of body : 7.5-8.5 mm., of proboscis : 3.5-4.2 mm.; breadth (with wings expanded) : 15-15.8 mm.

Three males only are known, of this species, including the type, collected by me in Wadi El-Rabba, near St. Catherine Monastery, altitude 1700 metres in South Sinai, between April 21st and 27th 1940.

ANASTOECHUS

(Osten-Sacken 1877, *Bull. U. S. Geolog. Surv.*, III, 251)

TYPE OF THE GENUS :

nitidulus F. (1794), *Entom. Syst.*, IV, 409, 8 (*Bombylius*).

Small to rather large densely furry *Bombylius*-like flies distinguished by the shape of the head which is broader and more flattened than in all the other closely related genera, the white or whitish hairs covering the face, and sometimes including strong bristles (always also on the thorax), and by the long, tuft-like abdominal fourrure usually also including strong bristles on the segments especially in the female.

Head broader and more flattened (owing to being shorter) than in *Acanthogeron* and *Systoechus* and the eyes in both sexes always more widely separated than in the other closely related genera; the entire pubescence of the face and cheeks (forming the beard) is generally all white or yellowish, sometimes including strong bristles but only rarely with a very few black hairs intermixed; proboscis and palpi as in *Bombylius*; antennae with the third segment usually as broad as the second at the base, and gradually tapering to a long and thin point which ends by a microscopic style; in length, this third segment varies from longer or shorter than the two first segments together.

The dense and erect pubescence on the thorax includes more numerous coarse hairs and bristles than in the preceding genera.

The wing venation is similar to that of *Systoechus*, i.e. with the r-m cross-vein placed very close to the base of 1st M_2 cell, but the latter is very obtuse at the end; in colour, the wings vary considerably from entirely hyaline (usually so in the female) to more or less deeply infuscated or brownish-yellow across the base or the middle (often in the male only).

Legs with relatively short spines and occasionally these are very small or even nearly wanting; pulvilli often considerably reduced (especially in the female).

Abdomen clothed with very long tuft-like furrure and with long and strong bristles which are much more conspicuous in the female; this abdominal vestiture (the dense long hairs and bristles) often forms tuft-like bundles over the apical segments and these are less conspicuous in the male owing to the long bristles being less numerous and much weaker than those of the female. Male genitalia rather uniform and of no apparent value to distinguish between species; ovipositor apparently always spiny although the spines are frequently concealed.

Becker (1913, *Genera Bombyl.*, p. 492, note) had united this genus with *Systoechus* but later the same author (1916, *Annal. Mus. Nat. Hung.*, XIV, pp. 50-51) accepts the two genera as distinct, chiefly on account of the character of the frons in the male of *Anastoechus*. Osten-Sacken (1877, *loc. cit.*) had previously given distinctive cephalic and venational characters when erecting his genus, and Bezzi (1924, *The Bombyl. of the Ethiop. Region*, p. 72) states that the character of the discoidal (1st M_2) cell being always obtuse at the tip and almost truncate, its terminal cross-vein being at least as long as, often longer than the middle (m-cu) cross-vein, combined with features presented by the head, obviates any doubt as to the generic position of any species belonging to *Anastoechus*.

Like those of *Systoechus*, the species of *Anastoechus* in the larval stage are parasitic in the egg-capsules of locusts and grass-hoppers. Portchinsky (1894, *Les parasites des criquets nuisibles en Russie*, St. Petersburg) describes the larvae of *Anastoechus nitidulus* as whitish, cylindrical or somewhat flattened with slight swellings along the lateral margins. The body consists of 13 segments. The head is small, retractile; the mouth parts are quite like those of *Bombylius*-larvae, and there are likewise small antennal papillae. The larva is amphipneustic with spiracles on the prothorax and on the pre-anal segment. The pupa also resembles that of *Bombylius*; it is yellow and has two strong spines on the head at the base of the antennal sheaths, and at the end of each sheath two other spines somewhat connected at the base, and finally there is a pair of spines at the base of the proboscis,

thus eight spines in all. The armature of the abdomen is similar to that in *Bombylius* but apparently there are no long bristles on the dorsum of the first segment. The same author has bred this larva together with that of *Systoechus autumnalis* from the egg-capsules of *Stauronotus maroccanus*. Engel (1937, *loc. cit.*, pp. 287-288, f. 126) gives a figure of the pupa of *Anastoechus nitidulus* Fabr. and states that it was obtained from the nest of a solitary bee.

I have before me three specimens (one male and two females) of *Anastoechus niveus* Herm. belonging to the collections of the Entomological Section, Ministry of Agriculture, bearing the label « Giza, 14.VI.1929, Sphingid larva, coll. Andres ». Unfortunately the person who wrote this label died some ten years ago and I was unable to obtain any further details on this matter from the officials of that Ministry who were working with the late Mr. Andres.

Engel (1937, *loc. cit.*) records some forty two Palaearctic species of *Anastoechus* and six varieties, at least eight of which occur in Egypt.

The very rich series of most of our Egyptian species belonging to this genus have shown that the species are very difficult to distinguish, because the colour of the furry pubescence and that of the bristles or bristly hairs on the posterior border of the abdominal segments is subject to great variability. Moreover, other important characters appear to be subject to variation in the same species, e.g. the distance between the eyes, at the vertex, in the male and the colour of the bristles forming the comb (basal costal comb) at the base of the costa. This last mentioned character, on which is based the key to the species of most of the previous writers is in my opinion most unreliable.

TABLE OF SPECIES

- 1 (4) Thorax, scutellum and abdomen always in the female but only sometimes in the male with a conspicuous whitish mid-dorsal longitudinal line or narrow stripe formed by short decumbent white scales.
- 2 (3) Large clay colour to deep olive buff species (10.5-16 mm.); wings with the base of vein R_4 placed almost at right angles (at the point of its bifurcation with vein R_5) and emitting a short appendix in R_3 cell; eyes in the male widely separated, the distance between them being quite twice the breadth of the ocular tubercle and with the upper facets not enlarged. *trisignatus* PORTSCH., var. *retrogradus* BECK.
- 3 (2) Medium sized Javel green, oil green or mustard yellow species (7.5-11.5 mm.); wing venation normal; eyes in the male closer together,

the distance between them being somewhat narrower than the breadth of the ocellar tubercle and with the upper facets enlarged

..... **aurifrons** NOV. SPEC.

- 4 (1) No whitish longitudinal line or stripe on the dorsum of the body (thorax, scutellum and abdomen), if short decumbent scales present, then always more or less densely and evenly distributed over the dorsum.
- 5 (6) Pubescence on frons in both sexes all yellow (more or less pale) without any black or brown hairs, even above **Bahirae** BECK.
- 6 (5) Pubescence on frons in both sexes always much darker on the upper part (black or cinnamon brown) and yellow or pure white below.
- 7 (10) Pubescence on frons in both sexes black on the upper part and often on the sides as well.
- 8 (9) Whitish, light olive grey, sulphur yellow or pale brownish-yellow species; abdominal bristles white, yellowish or at least in part, brownish, dark brown or blackish-brown **exalbidus** MEIG.
- 9 (8) Isabella colour, olive ochre or almost whitish species; abdominal bristles blackish brown, at least in part, brownish or all pale (yellowish) **stramineus** MEIG.
- 10 (7) Pubescence on frons in both sexes cinnamon brown, Mars brown or blackish-brown; fourrure on all the body white or pure snow white **niveus** HERM.

Anastoechus aurifrons NOV. SPEC.

DIAGNOSIS :

A medium sized furry *Bombylius*-like species with the wings of the male usually possessing a broad transverse brown stripe just before the middle, very much as, but rather deeper and more conspicuous than, in *trisignatus* var. *retrogradus*, the pubescence on the frons devoid of black hairs in both sexes, distinguished by the colour of the general pubescence which varies from Javel green or oil green to mustard yellow or sulphine yellow and by the conspicuous white mid-dorsal longitudinal line on the entire body or the abdomen only of the female, formed by short dense white scales as in *trisignatus* var. *retrogradus*.

DESCRIPTION :

♂ : *Head* (Pl. XXVI, figs. 404 and 405) greyish-black; frons bearing long erect clear dull green yellow or colonial buff pubescence except at the centre and on the sides where the hairs of similar colour are short and scaly; face clothed with very dense but not long pale yellowish pubescence

which is also shorter, decumbent and scaly on the outer border of the genae (along the eye margins) and on all the lower part of the head the softer erect pubescence is all whitish; occiput with numerous Javel green or white broad scales along the orbits and with dense erect, rather coarse Javel green or mustard yellow pubescence on the upper half but which are much larger on the upper part, as usual; ocellar tubercle moderately elevated, blackish and bearing a tuft of long erect pale yellow or dark brown (Prout's brown) hairs; eyes separated (on the upper part of the frons) by a distance which is somewhat narrower than the broadest back part of the ocellar tubercle and with the facets of the upper third enlarged; proboscis dull black and about twice as long as the head (including the antennae); palpi yellow or brownish-yellow with rather long stiff whitish hairs ventrally; antennae blackish but often the extremities of the three segments obscure reddish-brown; first segment with long erect pubescence except on the inner sides and with the hairs above longer and darker (mustard yellow or chamois) than those on the ventral side which are often scaly and whitish; second segment with some minute blackish hairs above; third segment as long as, or distinctly longer than the two first segments together, broad ovate conical or pyriform on the basal half and the rest of the segment drawn out into a long, narrow thin point which is usually reddish-yellow or brownish-yellow about the apex.

Thorax black, obscured by very dense erect but not long pubescence of uniform length which varies from Javel green or oil yellow to sulphine yellow, but which is paler on the sides of the lower half, particularly the outstanding shimmering tuft on the postalar calli; no black hairs occur anywhere; the numerous pre-alar bristles and all those in front of them (arising from the upper parts of the pleurae) are brownish-yellow or light Javel green and the longer postalar bristles much paler, often shimmering whitish or yellowish; scutellum yellowish-red or obscure reddish-brown except on the basal third or fourth black or blackish; scutellar pubescence similar to, and merged into that of the thorax, and with numerous marginal as well as a few premarginal bristles which are not very long or strong and all brownish or pale yellow; pleurae densely clothed with long soft pubescence which is more or less pale yellowish on the upper parts and paler, almost whitish and somewhat shorter on the lower parts.

Wings hyaline but usually with a broad, more or less apparent transverse brown stripe immediately before the middle (across the r-m and m-cu cross-veins) which is very much like that in *trisinatus* var. *retrogradus* being broader above (on the Sc cell) and usually fading away before reaching the lower wing margin; this stripe is sometimes indistinct (very pale) and occasionally totally absent leaving the wing entirely hyaline except at

the base and the Sc yellow; venation normal although the basal portion of vein R_4 , at its bifurcation with vein R_5 is often placed almost at right angles and occasionally showing a tendency to emit an appendix in R_3 cell; terminal cross-vein at the end of 1st M_2 cell longer than the m-cu cross-vein; basal costal comb of dense white scales above and the bristles in front chamois, honey yellow or dark brown, almost blackish; alula with a dark brown or blackish margin and a short whitish fringe; squamae more or less pale brownish-yellow with a thick but hardly darker margin and a dense long whitish fringe; halteres reddish-yellow or brownish-yellow with the summit of the knob usually paler (cream buff) but occasionally dark brown.

Legs reddish-yellow or brownish-yellow except the basal two-thirds of the coxae, the basal fourth or half of the front and middle femora, and most of the hind femora except the apex blackish; sometimes the hind tibiae and tarsi as well as the apical segments of the rest of the tarsi are obscure brownish; coxae and base of femora with long whitish or pale yellowish hairs; femora and tibiae densely clothed with short closely adpressed white or pale yellowish broad scales; all the bristles and spicules are pale yellowish; middle femora with two or three bristles on the anterior side towards the middle; hind femora with a ventral row of about eight bristles and two or three similar ones near the apex above; claws black except about the base reddish-yellow or brownish-yellow; pulvilli atrophied and whitish.

Abdomen entirely blackish or with the lower margin of the segments reddish-brown (but not broadly so) and obscured by dense, long (more than twice as long as that of the thorax) erect pubescence which varies from all whitish and pure white about the apex (in the specimens with Javel green pubescence on thorax and head) to deep mustard yellow (in the specimens with sulphine yellow pubescence on thorax); occasionally, in addition to the long erect pubescence the dorsum of the abdomen possesses a pale median longitudinal line formed by short decumbent whitish scales, which may also extend upwards on the apex or on the centre of the scutellum; sometimes also, in addition to the erect long pubescence, the dorsum bears an undercoat of sparse, unevenly scattered, very short whitish scales and which are not concentrated or crowded on the mid-dorsal line; bristles on the posterior border of the segments very variable in colour, either all whitish, or all pale brownish with the tips a little darker, or mustard yellow with the apical portions blackish; venter more or less dark or obscure yellowish-brown or reddish-brown clothed with very dense long pale yellowish hairs as well as with very numerous short decumbent white scales; hypopygium reddish-yellow or brownish-yellow with very short, fine but stiff whitish hairs.

♀: Not unlike the male but the wings are hyaline except about the base and the Sc yellow, the chaetotactic bristles much stronger as usual, the first segment of the antennae often entirely yellow or reddish-yellow, and the body (thorax, scutellum and abdomen) possessing an undercoat of short decumbent scales all over but which is always more dense and whitish in the middle, forming a more or less broad, conspicuous longitudinal line or stripe and this mid-dorsal line being evident sometimes only on the abdomen.

Head (Pl. XXVI, figs. 406 and 407) greyish-black; frons at the vertex a little broader than one third the width of the head because the eyes are separated by a distance which is about four times the width of the ocellar tubercle; the pubescence on the head is very similar in colour to that of the male but the erect hairs are decidedly more bristly and sometimes those on the upper border of the frons; on the vertex and the tuft on the ocellar tubercle are dark brown (Prout's brown). Venter with sparse long erect pale yellowish bristly hairs, almost true bristles and with dense short decumbent white elongate scales which form tufted bundles on the sides of each of the first four or five sternites; ovipositor brownish-yellow, shining and with two lateral rows of small very acute yellow spines (but whose very fine acute apex is black).

♂, ♀ Length of body : 7.5-11.5 mm.; of proboscis : 4.2-6 mm.; breadth (with wings expanded) : 15-22 mm.

There are twenty three males and thirty females of this species, including the types, in the collection of the Fouad Ist University, Faculty of Science and in my collection. Seventeen of the males and twelve females were collected by Shafik Mostafa Effendi and myself in Wadi el-Legaâ, Southern Sinai, 1750 m. and the rest were also captured by the two of us at Ein Gedeirat, in Northern Sinai. Among the series from the Southern locality many individuals exhibit the Javel green pubescence and the palest forms described here, while most of the specimens from Northern Sinai possess the darker pubescence. I have also one pale greenish-yellow female captured by Mohamed Tewfik Effendi at Bir Abrag, South-Eastern desert and another chamois female originating from Wadi Moweleh in Central Sinai. My dates extend from February 22nd to June 6th.

Anastoechus Bahirae BECK.

Becker (1915), *Annal. Mus. Nat. Hungar.*, XIII, 326, 98; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 167; Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 298, Tab. VI, f. 72; Austen (1937), *Bombyl. of Palestine*, 41, 42, 25.

SYNONYMY :

fuscipennis Beck. (1915), *Annal. Mus. Hungar.*, XIII, 326, 98.

fuscipennis Beck. (1916) [*lapsus*], *Annal. Mus. Nat. Hungar.*, XIV, 56.

DIAGNOSIS :

A small to rather large fly with the furry pubescence on the body (thorax and abdomen) varying from mustard yellow to pale yellowish, almost whitish, the abdominal bristles usually all black in both sexes but occasionally yellowish with at least their distal extremities brown or blackish-brown, distinguished by the pale yellowish-grey pubescence on the vertex and frons in both sexes and by the presence (almost always) of the sepia coloured transverse band in the male only (wings of female hyaline).

DESCRIPTION :

♂ : *Head* (Pl. XXVII, figs. 408-410) black, covered with a pale brownish-grey or whitish dust; frons clothed with long erect yellowish-white to chamois or honey coloured coarse, almost bristly hairs which are disposed on the sides, forming a sort of triangle and leaving a median small area above the base of the antennae as well as the extreme outer margins almost bare; these hairs about the base of the triangle (on each side of the base of the antennae) and on the sides (nearest to the eye margins) are distinctly paler and shorter, but often those at the narrowest point near the ocelli are more or less dark brown; face clothed with dense longish pale yellow or whitish coarse hairs which are usually somewhat darker about the centre (on the clypeus); viewed from the side this pubescence on the face and genae consists of very dense, short decumbent scales all along the inner or front eye margins and dense much longer (but not really long) more erect hairs concentrated about the centre; on the lower part of the head the pubescence is short, less coarse, dense and all white; occiput with numerous short adpressed white or yellowish scales on the middle third or more of the orbits and with dense, erect, fairly long whitish, yellowish or chamois coloured hairs on the upper third forming a sort of collar above; ocellar tubercle greyish-black with a tuft of long erect pale chamois or dark brown almost blackish hairs; eyes separated by a distance which is a little narrower than the broadest back part of the ocellar tubercle, and shorter than the length of the latter; proboscis dull black and quite twice the length of the head (including the antennae); palpi reddish-yellow or brownish with some long stiff whitish hairs on the outer side and tip; antennae dull blackish but occasionally the second segment and the ring-shaped constriction at the base of the third segment are obscure reddish-brown; first segment quite

twice the length of the second and bearing long stiff pale yellowish or chamois coloured hairs all over; second segment cup-shaped but with a very short, blunt dorsal tooth at the apex, and bearing very sparse minute whitish hairs dorsally; third segment somewhat spindle-shaped on the basal half, and it is narrower at the base than the second segment and its broadest part which is not far from the base is broader than the preceding segment; the apical half of this third segment is drawn into a long thin point which is sometimes obscurely reddish-brown towards the end and terminates in a reddish-yellow or reddish-brown hair or seta.

Thorax dull black, somewhat obscured by dense, erect long pubescence of uniform length on the dorsum, which varies in colour from pale yellowish-grey to deep chamois or honey yellow; usually no black hairs occur except occasionally on the postalar calli a few of the yellow hairs are brown or blackish about their tips; pre-alar bristles numerous (more than ten), honey yellow and some, difficult to detect; postalar bristles weak but very long, also numerous and pale yellowish or whitish; pleurae clothed with long dense soft whitish or pale yellowish pubescence all over; scutellum entirely black or brownish-red with a black base, clothed with a pubescence similar to and merged into that of the thorax and with numerous long but not strong, upturned yellowish bristles, one or two of which may occasionally be black or dark brown.

Wings hyaline and almost always with a sepia coloured transverse band towards the middle, which is usually broader above than below and which may occasionally be very pale and ill-apparent; basal costal comb well developed and from yellowish-white to chamois coloured; venation brownish-black; 1st M_2 cell rather broadly obtuse at the end, its terminal cross-vein being somewhat longer than the m-cu cross-vein; alula yellowish with a short pale brownish or yellowish fringe; squamae yellowish, with a blackish-brown margin and a long tufted whitish fringe; halteres more or less pale reddish-yellow or brownish-yellow with the knob pale yellowish or cream buff about the apex.

Legs reddish-yellow or brownish-red except the basal third or fourth of the front and middle femora, most of the hind femora except the tip and the tarsi towards the apex blackish but this dark colour is very variable; femora and tibiae clothed with short, closely adpressed broad whitish scales and the former bearing, in addition, some soft long white hairs ventrally on the basal third; middle femora with about two short yellow spines on the anterior side towards the middle; posterior femora with an anteroventral row of six to eight rather strong yellow spines, about two similar ones near the tip anteriorly and two others posteriorly as well as a few dorsally near the tip; all the rows of spicules and apical spurs on the tibiae and the

bristles on the tarsi are yellowish; claws black but reddish-brown or yellowish-red about the base; pulvilli about half the length of the claws and pale yellowish-white or greyish.

Abdomen black, somewhat shining, often with the extreme lower border of the segments whitish (when seen from the side and the light coming from in front), and clothed with dense, long (almost twice as that of the thorax) erect pubescence which varies from very pale yellowish-white to deep chamois, and with rows of usually all black bristles on the lower border of the segments, but occasionally these bristles are yellow except on their apical half or third dark brown or blackish; venter chamois or reddish-brown, with long more or less dense (much shorter and much less dense than on the dorsum) whitish pubescence and with or without short, adpressed broad white scales; hypopygium pale or dark reddish-yellow with short erect whitish hairs.

♀ : Very much like the male but with the wings entirely hyaline, the bristles on the body more numerous, much coarser and stronger, and with short adpressed yellowish or white scaly hairs or scales on the thorax and abdomen or on the abdomen only, in addition to the usual long erect pubescence.

Head (Pl. XXVII, figs. 411-413) grey; frons at the vertex more than one third the width of the head because the eyes are separated by a distance which is broader than three times the breadth of the ocellar tubercle; frons clothed with long erect bristly pubescence which, on the upper part is quite sparse and pale brown or chamois with the apex of the hairs dark brown and below, these bristly hairs soon become much paler, almost whitish and much more dense; in addition, the frons usually bears short decumbent scales which are sparse and yellow above and quite dense and much paler below; the rest of the head is very much as in the male. Thorax with a very sparse undercoat of decumbent yellow hairs or with the undercoat consisting of whitish scales crowded together in the centre and forming a median longitudinal line on the lower two-thirds of the disc and this line extending down on the centre of the scutellum and expanding on the middle third of the apical margin (of the latter). Pulvilli smaller and shorter than in the male. Abdomen usually with the extreme lower border of the segments more broadly paler (reddish-yellow or yellowish) and with an undercoat of short adpressed yellow hairs or whitish scales; in the latter case the white scales occur sparsely on the lower border of the segments and are much more concentrated in the centre where they form a median longitudinal stripe and which appears to be an extension of the similar pale stripe on the thorax and scutellum; when the undercoat consists of short yellow hairs, the latter form a transverse band on the middle third of each segment (approximately) and

each band (of yellow or yellowish hairs) extending down in the centre only, in a triangular-shaped marking and touching the segment's lower margin. Venter blackish with the lower border of the sternites reddish-yellow or obscure reddish-brown and with a very variable pubescence as in the male. Ovipositor reddish-yellow with yellowish or whitish pubescence and the spines usually concealed.

♂, ♀ Length of body : 7.2-14 mm., of proboscis : 5.2-6.5 mm.; breadth (with wings expanded) : 15.2-27 mm.

Bezzi (1925, *loc. cit.*, pp. 167-168) was the first to point out that *A. Bahirae* and *A. fuscipennis* (erroneously styled by its author *A. fuscipennis* in 1916, *Annal. Mus. Nat. Hungar.*, XIV, p. 56, 6) are but sexes of the same species. He even uses in his key to the species, as a character of distinction between the two sexes (which he designates as ♀ *Bahirae* Beck. and ♂ *fuscipennis* Beck.), the presence and absence of « a white line along the middle of the abdomen ». This is quite true for the female specimens whose undercoat is white and consists of true scales but hardly applicable to the majority in which the undercoat is formed of short adpressed yellow or yellowish hairs.

A. Bahirae varies considerably in size and in the colour of the abdominal bristles) unless *A. fuscipennis* proves to be worthy of specific rank.

This species is quite rare both in the Wadis South-East of Cairo (Wadi Garawi, W. Hoff, W. Rishrash) and in the Mariut district, but in the extreme South of Egypt (Gebel Elba). I have captured it fairly commonly. I have also collected two male specimens at Ein Gedeirat (Kossayema) in Northern Sinai. My dates extend from January 10th (Gebel Elba) to May 20th (Ein Gedeirat).

A. Bahirae is also known from Tunis, Algeria (Biskra) and from Palestine.

Anastoechus exalbidus MEIG.

Weideman *apud* Meigen (1820), *Syst. Beschreib.*, II, 215, 45 (*Bombylius*); Loew (1855), *Neue Beitr.*, III, 38, 74 (*Systoechus*); Becker (1906), *Zeitschr. f. system. Hymen. u. Dipt.*, VI, 109, 47 (*Systoechus*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 166, 167, 1; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 301, Tab. VI, f. 74; Austen (1937), *Bombyl. of Palestine*, 40, 41, f. 11.

SYNONYMY :

aegyptiacus Param. (1930), *Mém. Acad. Sciences Ukraine*, Tom. XV, livr. 3, 87 (437); Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 296.

DIAGNOSIS :

A small to medium sized, sometimes fairly large species, with the furry pubescence on the body varying from white, greyish-white to sulphur yellow or very pale brownish-yellow, the abdominal bristles whitish or at most dark brown about the distal half, with the long erect black hairs on the upper part and sides of the frons placed very much as in *stramineus* Wied. but distinguished by the reddish-yellow legs in which the front and middle femora are infuscated on the basal half or more and the hind femora almost all blackish except at the tip.

DESCRIPTION :

♂ : *Head* (Pl. XXVII, figs. 414-416) black; frons clothed with long dense erect pubescence which is pure white or sulphur yellow about the centre of the lower half but almost all black above and on the sides with a few pale hairs intermixed forming a sort of triangular black frame on each side of the pale pubescence; in addition the frons bears a dense undercoat of pure white or sulphur yellow, short sub-erect scaly hairs or elongate scales which are very evident on the sides among the long black hairs and which are almost always absent on the narrowest part above (below the ocellar tubercle); face clothed with dense long but not coarse pure snow white or whitish (yellow) pubescence all over and on the sides and with numerous short adpressed white scales; the upper part or half of the sides of the face usually bearing a row or two of long erect black hairs which are in reality the lower edge of the black frame of hairs of the frons; the pubescence on the lower parts of the head is fairly long, erect, soft, tufted and white; occiput with numerous short adpressed pure white or pale yellow scales on the middle third or more of the orbits and with very long dense and tufted pure white or sulphur yellow pubescence forming a remarkably high and thick collar behind the upper half of the head; ocellar tubercle with a tuft of long erect hairs which are usually whitish or yellowish on the back part but black or dark brown on the front part; eyes separated by a distance which is slightly broader than the ocellar tubercle and somewhat longer than the length of the latter; antennae black but often the third segment brownish-yellow about the apex; first segment with dense long erect pure white or pale yellow hairs all over; second segment globate and with two or three minute white hairs dorsally near the apex; third segment, as long as, or a little longer than the two first segments together, spindle-shaped on the basal half and with the apical half drawn out into a long thin point ending in a pale sensory seta.

Thorax dull black, obscured by dense long erect pubescence of uniform length on the dorsum which varies in colour from pure white on the sides

and light drab or greyish-olive on the dorsum to sulphur yellow on the sides and sulpine or pyrite yellow on the dorsum; there are no black hairs anywhere; the numerous pre-alar and postalar bristles weak and difficult to detect owing to being of the same colour and hardly longer than the dense pubescence; pleurae with long soft tufted pubescence all over which is pure white everywhere or pale sulphur yellow on all the upper parts and pure white on the lower parts; scutellum dull black, clothed with a pubescence similar to, and merged into that of the thorax and with some weak but long pale bristly hairs on the margin.

Wings very variable, usually tinged light sayal or deep snuff brown on the basal two-thirds or rather more, leaving the apical third or fifth hyaline but occasionally entirely and uniformly tinged deep Isabella colour and rarely all hyaline; venation normal, paler near the base and often the Sc cell yellow; 1st M_2 cell broadly obtuse at the end, its terminal cross-vein being about as long as the m-cu cross-vein; basal costal comb all white or whitish (including the spines in front), or white or yellowish above but with the spines in front black or brown; alula small, brownish-yellow or hyaline with a dark brown or blackish margin and a longish white fringe; squamae brownish, with a blackish margin and a very long white fringe; halteres reddish-brown, more or less dark with the knob often paler about the apex.

Legs reddish-yellow or yellowish-red with the coxae, trochanters, the basal two-thirds of the front and middle femora, most of the hind femora except the tip and the apical tarsal segments blackish; all the femora and tibiae densely covered with short, closely adpressed pure white broad scales and the front and middle pairs bearing in addition long white hairs on the basal two-thirds below, while the hind femora similar ones at the base only; all the bristles and spicules are yellowish; middle femora with about four very weak bristles ventrally towards the middle; hind femora with a ventral row of about eight fairly strong and long bristles as well as an anterior row of about three shorter ones and a posterior row of similar bristles on the apical third; tarsi with short white scales and minute whitish hairs; claws black with reddish-brown bases; pulvilli well developed, about two-thirds the length of the claws and light drab.

Abdomen dull black, obscured by very long dense, furry pubescence which varies considerably from almost white or light olive grey to sulphur yellow; the hind border of the segments bear in addition numerous very long (longer than the hairs of the pubescence) bristly hairs or bristles which also vary remarkably in colour, being all white with the tips hardly yellowish, in the white furry specimens, or pale brownish-yellow on the basal half and the rest dark brown, almost blackish in the olive grey haired speci-

mens, to all brownish-yellow in the sulphur yellow forms; venter greyish-black with the lower border of the sternites cream buff or brownish-yellow (more or less pale) and clothed with long (but much shorter than on the dorsum) soft pure white or yellowish pubescence all over; hypopygium brownish-red or chestnut red with very short erect reddish-yellow or whitish pubescence.

♀ : Very similar to the male but the general pubescence, including in particular the chaetotaxy, is coarser and the wings are always entirely hyaline, except about the base and the Sc cell yellow.

Head (Pl. XXVII, figs. 417-419) greyish-black; frons at the vertex much more than half the width of the head because the distance between the eyes equals to quite five times (or even more) the breadth of the ocellar tubercle; frons clothed with long erect bristly pubescence which is black on the upper third (or rather less) but sparse and also black but quite dense on the sides; the pubescence on the rest of the frons is from pure white to sulphur yellow and in fact the position or arrangement of the black and pale pubescence corresponds to that found in the male except that the long black hairs do not extend down on the sides below a line parallel with the base of the antennae; the undercoat of short white or yellowish decumbent scales is very much as in the male.

Legs as in the male except the pulvilli very short and atrophied (at most one third the length of the claws).

Abdomen sometimes with a sparse undercoat of short adpressed white scales in the centre forming a narrow median pale longitudinal line (usually ill-defined and more often absent). Venter, in addition to the long white pubescence, with an undercoat of short adpressed white or yellowish scales. Ovipositor reddish-yellow or yellowish-brown with short erect reddish-yellow pubescence; spines concealed.

♂, ♀ Length of body : 5-10.5 mm., of proboscis : 3.5-6.8 mm.; breadth. (with wings expanded) : 10.5-23.5 mm.

This apparently endemic species, which is by far the commonest representative of the genus in Egypt exhibits remarkable variations both in size and in the colour of the fourrure of the entire body. I feel convinced that *A. aegyptiacus* Param. is the common white variety or form of *exalbidus*. The sulphur yellow form, which originates from the extreme South of Egypt (Gebel Elba) might well be considered in the eyes of some authors as worthy of specific rank but the position and arrangement of the black hairs in relation to the pale ones on the frons is identical to the other forms. On the other hand, this pale yellow form might well be mistaken for *stramineus* Wied. had it not been for the eyes of the male which are more approximated and the femora extensively infuscated or blackish.

A. exalbidus is very common in Egypt and its distribution extends over all the Sinai Peninsula from North to South and in the Eastern Desert from the Suez Road to Gebel Elba. I have captured it in rich series at Ein Gedeirat (Kosseyma, N. Sinai), Wadi El-Rabba and W. el-Legaa (S. Sinai, altitude 1700 m.). Very long series of both sexes were collected also in all the Wadis East and South-East of Helwan, W. Digla, W. Gendali, W. Garawi, W. Hoff, W. Zohleiga, W. Um-Elek, W. Dar el-Maskhara, W. Bir el-Fahm, W. Wirak (North Galala), W. Morrah, Suez Road, Ismailia and in W. Edeib and W. Kanssissrob (Gebel Elba). Most of the specimens from the last named locality possess the sulphur yellow fourrure, a few with the whitish fourrure, and three specimens are intermediary in colour. Moreover, the infuscation on the femora is often considerably reduced in these pale yellow individuals and the eyes in the males are somewhat more widely separated than in the whitish specimens thus suggesting a transitional form between *exalbidus* and *stramineus*. My records extend from the middle of January to the end of April.

Outside Egypt this species is found in Palestine, other parts of North Africa and in Southern Europe.

Anastoechus niveus HERM.

Hermann (1909), *Verh. naturwiss. Ver. Karlsruhe*, 1909, 73, 14; Becker (1916), *Annal. Mus. Nat. Hungar.*, XIV, 58, 15; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 166, 167; Paramonow (1930), *Mém. Acad. Sciences Ukraine*, Tom. XV, livr. 3, 458; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 309, f. 129, Tab. IV, f. 79 et Tab. V, f. 62; Austen (1937), *Bombyl. of Palestine*, 42, 26.

SYNONYMY :

♀ *albopectinatus* Beck. (1913), *Annu. Mus. Zool. Acad. St. Petersb.*, XVII, 582, 119.

DIAGNOSIS :

A rather small to quite large fly, with the fourrure of the body all white or pure snow white, the abdominal bristles all white or yellowish, the erect hairs on the upper part of the frons cinnamon brown or Mars brown, distinguished by the shape of the third antennal segment which is very narrow conical, almost cylindrical, and by the atrophied or rudimentary pulvilli in both sexes.

DESCRIPTION :

♂ : *Head* (Pl. XXVI, figs. 400 and 401, and Pl. XXVII, figs. 420-422) greyish-black; frons clothed with long erect fairly dense pubescence which

is cinnamon brown or Mars brown above (on approximately the upper third) but pure snow white and very dense on the rest of this area where also very numerous short snow white scales occur and which are particularly evident along the front margins of the eyes; face clothed with long erect uniformly pure snow white hairs as well as with dense short decumbent scales of the same colour; the latter extend 'all around the lower and hind margins of the eyes to the vertex and the occiput; the latter, in addition to the scales, bears long erect white hairs which are much longer above and form a very high collar behind the upper third; ocellar tubercle blackish and with a dense tuft of long, Mars brown or blackish stiff and forwardly directed bristly hairs; eyes at the vertex separated by a distance which varies remarkably in different individuals from as broad as, to distinctly broader than, the width of the ocellar tubercle (see figures); proboscis dull black, about twice as long as the head (including the antennae); palpi very short yellow or reddish-yellow with sparse very short yellowish pubescence and a few longer, similarly coloured hairs ventrally; antennae all black but with the third segment occasionally obscure reddish-brown about the apex and rarely the two first segments all yellow; first segment clothed with long erect pure snow white pubescence all over and often with some similarly coloured short scales; second segment sub-globate or cup-shaped with some very short stiff white hairs dorsally and possessing a tiny tooth or spine-shaped process at the tip above; third segment varying remarkably in shape and in length; often it is almost cylindrical with the apical half only slightly narrower than the basal half and distinctly longer than the two first segments together but almost as frequently also it is elongate conical or spindle-shaped on the basal half, with the apical half drawn out into a long thin point and not longer or distinctly shorter than the two first segments together; style minute or obsolete.

Thorax dull velvety greyish-black, obscured by dense erect but not very long pure white or dirty yellowish-white pubescence all over; chaetotactic bristles very numerous and all white or yellow or pale brownish; there is a row of long bristles on the anterior margin which appears to originate from the back of the head and which rest on the pubescence of the disc immediately behind the collar of the occiput; the pre-alar bristles are very numerous, some short and some long and densely crowded on the sides of the anterior part of the disc, many of which arising from the upper parts of the pleurae; two or three short but strong supra-alars but which may be absent; many long and strong postalars; a few short bristles also may occur near the posterior margin of the disc; all these bristles are quite evident when coloured pale brownish or yellow but difficult to detect when pure white like the accompanying pubescence; pleurae blackish-grey and

obscured by long dense soft pure white pubescence all over; scutellum occasionally all blackish but usually more or less obscure brownish-red or reddish-yellow except towards the base blackish, and clothed with a pubescence similar to and merged into that of the dorsum of the thorax and with numerous long upturned white or pale brownish bristles scattered on, and near the margin.

Wings very variable, usually with the basal half (approximately) coloured Prout's brown but distinctly paler (Sayal brown) on the basal third and the rest almost hyaline because somewhat milky opaque (very feebly); the outer border of this brown coloured area runs down obliquely from the apex of the Sc cell, close to (but not touching) the distal border of 1st M_2 cell and down to the end of vein M_3 ; this brown colour may be very faint and pale (light chamois), or it may be totally absent and in which case the wings are entirely hyaline or very feebly milky; veins blackish brown or all yellow; terminal cross-vein of 1st M_2 cell quite as long as the m-cu cross-vein; basal costal comb white or yellowish above with the spines in front pale yellow, honey yellow or Isabella colour; alula pale yellow or light Sayal brown with a blackish-brown margin and a short white fringe; squamae brownish-yellow with a thick dark brown margin and a long fairly dense white fringe; halteres yellowish-brown or brownish-red with the knob much paler (cream buff) about the apex.

Legs reddish-yellow and blackish and this latter colour varying considerably in extent; usually the blackish colour covers the coxae except the extreme apex, the trochanters except the extreme base, the femora except the apex and the apical tarsal segments, leaving the rest reddish-yellow or brownish-red; frequently however the tibiae and tarsi are obscure brownish and the hind legs even blackish; femora with long soft white pubescence at the base, ventrally and, together with the tibiae densely clothed with short, closely adpressed white or yellowish broad scales; posterior femora with a ventral row of six or eight short white, yellowish or pale brownish bristles, and with two similar ones near the tip, above; all the rows of spicules and spurs on the tibiae and tarsi, as well as the minute pubescence on the latter, are white or yellowish; claws black except at the base reddish-brown or reddish-yellow; pulvilli rudimentary, about one third the length of the claws and whitish.

Abdomen blackish or brownish-yellow, obscured by very long (about three times the length of that of the thorax) erect tufted and furry pure snow white pubescence and with numerous very long erect bristles on the lower margin of the segments (in one or two rows) which vary from pure white to pale brownish or yellow and which are longer than the hairs of the pubescence; venter blackish or reddish-brown with the lower border of the

sternites pale yellow or cream buff, and clothed with long erect but not dense (and shorter than that on the dorsum) pure white pubescence as well as with a sparse undercoat of short decumbent pure white scaly hairs; hypopygium brownish-yellow with short erect reddish or reddish-yellow stiff hairs.

♀ : Very much like the male but in addition to the coarser pubescence (particularly the chaetotaxy) on the entire body, the dorsum of the thorax, scutellum and abdomen possess a dense undercoat of short decumbent pure white scales and the wings are always entirely hyaline except about the base and the Sc cell yellow.

Head (Pl. XXVI, figs. 402 and 403, and Pl. XXVIII, figs. 423 and 424) blackish-grey; frons at the vertex more than half the width of the head because the eyes are separated by a distance which is quite five times the breadth of the ocellar tubercle; frons with long erect bristly hairs which is cinnamon brown or almost blackish and very coarse (decidedly bristly) on all the upper third or half and pure white, distinctly less coarse below, and with a fairly dense undercoat of short decumbent scales and bristly hairs which agree or match with the colour of the former, *i.e.* more or less dark brown on the upper part or half, and pure white below; face with a pubescence not unlike that of the male but coarser and often with a few true pale brownish or yellowish bristles about the upper margin of the mouth. Venter with the undercoat of short decumbent pure white scales very dense and the long erect pubescence much coarser than in the male, as numerous white or yellowish true bristles occur on the sternites; ovipositor reddish-brown or yellowish-brown with very short whitish pubescence and the spines apparently concealed.

♂, ♀ Length of body : 6.5-12 mm., of proboscis : 2.8-6.5 mm.; breadth (with wings expanded) : 13-28.5 mm.

This species varies also considerably as regards size, and, as pointed out in the above description of the male, as regards the distance at the vertex between the eyes, an important character which, as a rule is constant in the same species of other genera. The colour of the bristles is also subject to variability but that of the pubescence is almost always pure white and only in rare cases, particularly in the female the erect pubescence on the dorsum of the thorax may be light brownish-grey.

A. niveus is one of our commonest representative of this genus and has a wide distribution in Egypt. I have captured it in large series from almost every locality, the Mariut district, Ismailia, Suez Road, North and South Sinai (Ein Gedeirat and Wadi El-Legaâ, altitude 1700 metres), Gebel Elba, and in the neighbourhood of Cairo, Ezbet El-Nakhl, Wadi Digla, W. Hoff, Ogret el-Cheikh, W. Morrah, W. Garawi, W. Rishrash. Undoubtedly the

most interesting record relating to this species is on the label attached to the three specimens belonging to the Ministry of Agriculture and mentioned on page 278. Unfortunately this record is much too short and somewhat vague. My dates extend from the middle of March to the middle of October.

According to Becker (1916, *loc. cit.*, p. 58, 15) two specimens of this species exist in Prof. H. Hermann's collection originating from the Sinai Peninsula and from Biskra. The same author has described the female from Persia under the name *albopectinatus*. Engel records the capture of a male at Jericho in Palestine.

Anastoechus stramineus WIED.

Weideman *apud* Meigen (1820); Syst. Beschreib., II, 215, 46 (*Bombylius*); Loew (1855), Neue Beitr., III, 35, 67 (*Systoechus*); Becker (1906), Zeitschr. f. system. Hymen. u. Dipt., VI, 110, 49; Strobl (1906), Mem. R. Soc. Espan. Hist. Nat., III, 285, 555 (*Systoechus*); Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 166, 167, 2; Paramonow (1930), Mém. Acad. Sciences Ukraine, Tom. XV, livr. 3, 467 (117); Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 314, Tab. VI, f. 81; Austen (1937), Bombyl. of Palestine, 41, 23.

SYNONYMY :

latifrons Macq. (1838), in Webb et Berth.: Hist. Nat. Iles Canaries, Entom., Dipt., 105, 26 (*Bombylius*) *et* (1840), Dipt. éxot., II, 1, 94, 20, Tab. VI, f. 6 *et* Tab. VII, f. 2 (*Bombylius*); Walker (1849), List Dipt. Brit. Mus., II, 285 (*Bombylius*); Loew (1855), Neue Beitr., III, 33 (*Systoechus*) *et* (1860), Dipt.-Faun. Südaf., I, 177, 2 (*Systoechus*); Paramonow (1920), Mém. Acad. Sciences Ukraine, Tom. XV, livr. 3, 452 (102); Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 305.

acuticornis Macq. (1840), Dipt. éxot., II, 1, 92, 15, Tab. VI, f. 5 *et* Tab. VII, f. 2 (*Bombylius*); Loew (1860), Dipt.-Faun. Südaf., I, 177, 1 (*Systoechus*); Becker (1906), Zeitschr. f. System. Hymen. u. Dipt., VI, 107, 48; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 296.

flaveolus Beck. (1916), Annal. Mus. Nat. Hungar., XIV, 56, 7; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 166, 167, 3; Paramonow (1930), Mém. Acad. Sciences Ukraine, Tom. XV, livr. 3, 447 (97); Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 303.

DIAGNOSIS :

A small to medium sized *Bombylius*-like fly, with the fourrures of the body varying considerably from Isabella colour or olive ochre to very pale

yellowish-grey, almost whitish, very much resembling *A. exalbidus* with the wings usually tinged honey-yellow on the basal two-thirds or half, but with the spines of the costal comb of the wings dark brown or black and the legs all reddish-yellow or pale yellowish-red except the coxae, trochanters, extreme base of the femora and the apical tarsal segments blackish, but sometimes the dark colour as extensive as in *exalbidus*.

DESCRIPTION :

♂ : *Head* (Pl. XXVIII, figs. 430 and 431) clothed with a pubescence very similar to that of *exalbidus* except that the colour of the pubescence on the lower half of the frons and on the face instead of being usually all pure white, is chalcedony yellow or very pale yellowish; the arrangement of the erect black hairs on the upper part of the frons is identical with that found in *exalbidus*, and the same applies to the undercoat of short, adpressed scales on the head, and its colour agreeing with that of the accompanying long erect pubescence; the eyes are separated by a distance which is as broad as, or a little broader than the width of the ocellar tubercle; this latter with a tuft of long erect hairs which are usually all yellow or pale yellowish, but sometimes the hairs on the front part blackish; proboscis dull black and quite twice the length of the head (including the antennae); palpi concealed by the dense pubescence of the face and cheeks but its long erect whitish hairs are apparent on each side of the base of the proboscis; antennae entirely black and with the third segment varying somewhat in shape and in length (in relation to the lengths of the two first segments) as in *exalbidus*; first segment with dense long erect hairs and short scales or scaly hairs, which vary from chalcedony yellow to whitish; second segment with some very short pale hairs or scaly hairs dorsally.

Thorax dull black, obscured by long dense erect pubescence of uniform length on the dorsum which varies considerably in colour, from orange citrine on the dorsum and sulphur yellow on the sides; particularly of the lower portion, to very pale dirty yellowish or whitish on the disc and shimmering whitish on the sides; there are no black hairs anywhere; chaetotactic bristles as in *exalbidus*; pleurae and scutellum also as in the preceding species.

Wings as in *exalbidus* but the spines in front of the basal costal comb are often all black or dark brown, occasionally mixed blackish and whitish and sometimes all yellowish or whitish; alula, squamae and halteres as in *exalbidus*.

Legs as stated in the diagnosis and frequently with the blackish colour as extensive as in *exalbidus*; spines on femora, spicules, spurs, claws and pulvilli as in the latter.

Abdomen black, dull, obscured by very long dense erect furry pubes-

cence which varies considerably from aniline yellow or sulphine yellow to greyish-white and with numerous very long (longer than the hairs of the pubescence) bristles or bristly hairs on the lower border of the segments which vary in colour as those described in *exalbidus*; venter and hypopygium as in the latter.

♀ : Very much like the male except for the coarser pubescence and chaetotactic bristles, and for the wings which are entirely hyaline except about the base and the Sc cell yellow.

Head (Pl. XXVIII, figs. 432 and 433) as described in the female of *exalbidus*.

♂, ♀ Length of body, of proboscis, breadth (with wings expanded) as in *exalbidus*.

The very rich material at my disposal (more than 100 specimens of each sex) exhibit such great variability that not one single distinctive character, to differentiate between this species and *exalbidus* is available. The specimens of both sexes examined by Dr. Engel and compared with Meigen's types of both species *stramineus* and *exalbidus* have been returned and I must admit, are inseparable, especially after taking into consideration the wide variation in colour, etc., of the rich material from Egypt.

This species is common everywhere and has the same wide distribution as *exalbidus*, of which it might very possibly be a synonym. I have captured it in great numbers in the Mariut district, in the neighbourhood of Cairo, in North and Southern Sinai (Ein Gedeirat and Wadi El-Legaā), in the Wadis of the Eastern Desert (W. Garawi, W. Hoff, W. Digla, W. Rishrash, etc.) and in the extreme South (Gebel Elba). My dates extend from January 10th to the end of April.

A. stramineus is also known from Lithuania, Southern Europe, the Canary Islands, other parts of North Africa and from Palestine.

Anastoechus trisignatus PORTSCH.

Portschinsky (1881), *Horae Soc. Entom. Ross.*, XVI, 136; Becker (1902), *Mitteil. Zool. Mus. Berlin*, II, 17, 12 (*A. retrogradus*) et (1916), *Annal. Mus. Nat. Hungar.*, XIV, 19 (*var. retrogradus*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 167, 168 (*retrogradus* var.); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, Tom. XV, livr. 3, 470(120); Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl. 316; Austen (1937), *Bombyl. of Palestine*, 41, 22.

var. retrogradus BECKER

Becker (1902, *loc. cit.*)

DIAGNOSIS :

A large deep olive buff to pale clay coloured species with the eyes in

the male more widely separated than in the other Egyptian species, easily distinguished by the wings in which the basal portion of vein R_4 , at its bifurcation with vein R_5 , is placed almost at right angles, and emitting a short appendix or petiole in R_3 cell.

DESCRIPTION : *Anthomyia (Anthomyia) fuscicornis* sp. nov.

♂ : *Head* (Pl. XXVIII, figs. 425 and 426) greyish-black; frons clothed with dense, short, decumbent whitish or yellowish coarse scaly hairs or elongate scales and with some long erect bristly hairs of a slightly darker yellowish colour (than the scales) but which are always absent on the centre (in the median longitudinal furrow) and the outer sides; when viewed from in front the erect bristles and the short scales about the middle part are usually chamois coloured and the scaly hairs or scales on the sides are pale yellowish; face clothed with a dense decumbent pubescence which is formed of numerous long whitish or chamois coloured bristles and of very numerous short whitish or pale yellowish scaly hairs; on the lower part of the head the pubescence is short, less coarse and all white or whitish; occiput with numerous short adpressed white or olive ochre scales on the orbits and with dense erect but not long light olive grey or olive ochre bristly hairs (almost true bristles) on the upper half and which are longer above, behind the vertex; ocellar tubercle with a rather dense tuft of longish, forwardly directed bristly hairs which also vary in colour from pale olive grey to deep olive ochre; eyes less approximated at the vertex than in all the other Palaearctic species, being separated by a distance which is quite twice the breadth of the ocellar tubercle and with the upper facets not enlarged; proboscis dull black and about twice the length of the head (including the antennae); palpi reddish-yellow with sparse short but stiff black or reddish-brown hairs; antennae varying considerably in colour; first segment blackish or reddish-yellow and bearing numerous erect whitish or chamois bristly hairs all over; second short, cup-shaped segment all blackish or reddish-yellow at the base and extreme apex; third segment narrow conical or pyriform on the basal half and the rest of the segment drawn out into a long narrow point; this third segment is distinctly longer than the two first segments together, usually black except on the extreme base reddish-yellow or reddish-brown and often the narrow apical half obscure reddish-brown.

Thorax dull black, obscured by very dense erect but not long pubescence of uniform length which varies considerably in colour from greyish-olive to ochraceous tawny or Buckthorn brown and often with a whitish longitudinal line on the middle of the lower half of the dorsum formed by short decumbent whitish or pale yellowish scales; this pale mid-dorsal line may be obsolete or it may extend rather higher than the middle of the disc; the longer (only a little) outstanding pubescence on the lower outer corners of

the disc is shimmering pale yellowish or whitish like the numerous very long postalar bristles which accompany it; no black hairs occur anywhere; the numerous pre-alar bristles and all those in front of them (arising from the upper parts of the pleurae) are ochraceous tawny or yellowish; pleurae densely clothed with long but rather soft pubescence which is usually more or less pale yellowish on the upper parts and all white on the lower parts; scutellum brownish-red except about the base blackish, or all obscure reddish-brown and darker at the base, and occasionally entirely reddish-yellow or reddish-brown; scutellar pubescence similar to, and merging into that of the thorax and usually with a whitish longitudinal line on the centre formed by short decumbent whitish scales which is often somewhat expanded below at the tip; the dorsum of the scutellum bears numerous strong bristles which are usually yellow or brownish but dark brown or blackish apically and the longer marginal bristles are all pale yellowish or all chamois coloured.

Wings (Pl. XXVIII, fig. 427) hyaline but often with a broad ill-defined transverse brownish stripe immediately before the middle which is much broader above (on the Sc cell) than below, and which fades away before reaching the lower wing margin (before the apex of the open 1st A cell); this stripe however is often very indistinct or totally absent and only at the base and the Sc cell yellow; the appendix emitted from vein R_1 near its base in R_3 cell is almost always present but may be minute, almost obsolete or as long as the r-m cross-vein; terminal cross-vein at the end of 1st M_2 cell as long as, or decidedly longer than the m-cu cross-vein; basal costal comb of dense white or whitish scales above and the strong bristles in front pale yellowish-white or olive ochre; alula with a short whitish fringe; squamae yellowish, with a thick darker margin and a long tufted whitish fringe; halteres brownish-yellow or reddish-brown on the stem and with the knob usually paler.

Legs reddish-yellow or brownish-yellow except the front and middle femora obscured near the base, the hind femora blackish almost to the tip, particularly above, and sometimes the hind tibiae and tarsi obscure reddish-brown; all the femora and tibiae densely covered with short closely adpressed, broad white or yellowish scales; coxae and base of femora with long dense whitish hairs; all the bristles, spicules and spurs are whitish or yellow; middle femora with a row of about four bristles on the anterior side towards the middle; hind femora with a ventral row of about ten strong bristles, about three posteroventral and two or three near the apex above; claws black but more or less obscure reddish-brown or brownish-red about the base; pulvilli atrophied, minute and whitish.

Abdomen black with the lower border of the segments rather broadly reddish-yellow or brownish and obscured by long (almost three times as long

as that of the thoracic dorsum) dense erect pubescence which varies considerably from glistening yellowish-white to pruinose yellow or olive ochre but which is always paler and shimmering on the sides and about the apex; this long pubescence is usually formed of two differently coloured transverse rows or bands of hairs on each segment, *i.e.* a transverse band of pale hairs (whitish or pale yellowish) on the upper part of the segment immediately followed below by a longer and somewhat more tufted band of darker hairs (pale yellow or olive ochre) and this pubescence together with the numerous strong and long (longer than the hairs of the pubescence) usually dark bristles on the lower border of the segments gives to the abdomen a characteristic transverse banded or serrate appearance; the bristles are whitish or pale brownish but almost always brown, dark brown or blackish towards the apex; often the abdomen possesses, in addition to the long erect pubescence, some short erect pale (yellowish) hairs or very short decumbent whitish scales concentrated on the middle of the segment and forming a median pale longitudinal line on the dorsum, and occasionally, a few scattered whitish scales occur on the upper margin, as well as the dorsum, in addition to those mentioned above (and forming the mid-dorsal line); venter blackish-grey with the lower border of the sternites yellow or reddish-brown, obscured by sparse long pale yellowish erect hairs and dense short decumbent white elongate scales; hypopygium reddish-yellow with short fine but stiff pale reddish-yellow hairs.

♀: Very much like the male but the chaetotactic bristles are more numerous and stronger, the median whitish longitudinal line formed by short adpressed scales much more conspicuous, broader, always present and usually extending from the upper border of the thorax down to the apex of the abdomen, and the wings always without darker transverse stripe.

Head (Pl. XXVIII, figs. 428 and 429) blackish-grey; frons at the vertex broader than one third the width of the head because the eyes are separated by a distance which is broader than four times the width of the ocellar tubercle; the pubescence on the entire head is very similar to that of the male but the erect pubescence is decidedly more bristly.

The *thorax*, in addition to the median whitish longitudinal line or stripe possesses two somewhat broader admedian pale stripes formed also by dense short decumbent whitish or yellowish scaly hairs or elongate scales.

Abdomen with more numerous scales on the dorsum, in addition to the ones crowded on the centre and forming the conspicuous pale mid-dorsal stripe. Venter as in the male but with numerous long and strong bristles some of which all yellow and many yellow but dark brown or blackish apically (almost the apical half); ovipositor usually concealed beneath the dense yellowish or whitish pubescence.

♂, ♀ Length of body : 10.5-16 mm., of proboscis : 5.5-8 mm.; breadth (with wings expanded) : 21.5-32 mm.

This large and handsome fly which occurs in many localities in Egypt is said to differ from the typical form of *A. trisignatus* Portsch. only in the presence of the appendix or stump near the base of vein R_4 . The type of *A. trisignatus* (*Systoechus*) was described from a specimen originating from Armenia (Erivan) where the flies were obtained in fairly large numbers while feeding in the flowers of *Acantholimon* sp.. Engel (1937, *loc. cit.*, p. 316) records one female specimen under the typical form, from my collection (from Gebel Elba) but I have not seen one specimen out of the large series of over fifty males and fifty females from Egypt in which the vein R_4 is normal (*i.e.* without at least a minute appendix near the base, in R_3 cell).

This variety of *trisignatus* is not uncommon in Egypt. I have collected it in large numbers in the Mariut district and Mersa Matrouh, Ismailia, in the neighbourhood of Cairo (Marg, Kerdasah, Abu Zaabal, Abu Rawash), in Wadi Hoff, W. Digla, W. Gendali, W. Garawi, W. Zohleiga, W. Rish-rash, and in the extreme South-Eastern frontier of Egypt, Gebel Elba (Wadi Edeib and W. Kanssissrob). My dates extend from the middle of March to June 6th. The specimens from the Western Mediterranean Coast (Matrouh and Mariout) exhibit a distinct olive ochre colour of the general pubescence while those originating from the Eastern Desert (W. Hoff, etc.) are much paler and the general pubescence is yellowish-white.

var. retrogradus is also known from Palestine and from Algeria.

BOMBYLIUS

(Linnaeus, 1758, *Syst. Naturi*, Ed. X, 606, 228)

SYNONYMY :

Choristus Walk. (1852, *Ins. Saunders.*, Dipt., I, 197).

Parisus Walk. (1852, *Ins. Saunders.*, Dipt., I, 196).

TYPE OF THE GENUS :

major L. (1761, *Faun. Suec.*, 1918 et 1767, *Syst. Nat.*, XII, II, 1009, 1).

Moderately large, middle sized or quite small flies, which are clothed with dense furry pubescence in most varied shades of silvery white, yellow and black, always with a very long thin, horny, and horizontally correct proboscis, long thin legs with spicules, and some species with conspicuously marked wings.

Head semi-circular, small or very small in comparison with the thorax and placed at a lower level because of the thorax being highly arched. Face short, consisting of the large broad upper mouth margin which is produced forward for a distance as long as, or a little shorter than the length of the first antennal segment, and of the feebly developed more or less narrow cheeks; its pubescence is composed of the beard, in the centre, which hangs down over the margin of the mouth and consisting of sparse, comparatively short hairs (hardly as long as the first antennal segment) or of dense, long bushy hairs, and of the « frame » (of the beard) on the sides on the cheeks and composed of from one to several rows of hairs whose colour is often different from that of the beard. Frons in the male short, triangular and in the female more or less broad and clothed with a pubescence which may be sparse and short or more dense long and bushy, and occasionally with some short scales as well. Eyes elliptical, bare, in the male, touching for a more or less long distance or very approximated, being separated by a narrow space which is hardly wider than the anterior ocellus (except in the case of *B. androgynus* Lw.) and with the facets of the anterodorsal surface enlarged; in fact, as Engel (1937, *loc. cit.*, p. 196) correctly states, they show three zones of facets of different sizes (but without a sharp line of distinction), the zone of the largest facets being on the upper surface of the eyes, that of the smallest on the under side, and in between these two zones the facets are intermediate in size. In the female the eyes are separated by a distance which varies from twice to almost four times the width of the ocellar tubercle. Occiput flat, clothed with dense, tufted pubescence and sometimes, in addition to this, long black hairs are present about the upper and side borders (behind the margin of the eyes). Proboscis very long, thin, horny, horizontally porrect usually exceeding two or three times the length of the head. Palpi short, thin, consisting usually of two more or less distinct segments. Antennae porrect, approximated at the base; basal segment cylindrical, much longer than the short cup-shaped second segment and bearing more or less long, straight hairs; third segment elongate and from long strap-shaped to peg-shaped in Egyptian species but it may be conical, or even dilated leaf-like in others and occasionally bearing dorsal scales; style terminal, very short and two-segmented.

Thorax short, oval but strongly arched, often with only dense furry pubescence, but frequently also, particularly in the female, with an undercoat of much shorter, often scale-like broadened hairs; in the black species true scales are also present (as well as on the abdomen and head) which are usually glistening silvery white and which form conspicuous spots or stripes, or both; bristly hairs or true bristles are often found in front of the wing base (presutural or pre-alar), behind the wings (postalar), and on the margin

of the scutellum (marginal scutellar); pleurae with dense, long furry pubescence and the metapleura always with a well developed fan of very long dense hairs; scutellum broad and with a pubescence usually corresponding to that of the dorsum of the thorax.

Wings outspread when at rest, entirely hyaline, or with a brown base and fore margin or with brown spots; R_2+3 vein gently curved up to the Costa but not looped; fork R_4+R_5 very wide, open, with its upper branch (R_4) ending before the wing tip and much nearer to R_2+3 than to its lower branch (R_5); cell R_5 always closed; r-m cross-vein placed on or a little after the middle of 1st M_2 cell, but sometimes on, or a little beyond the proximal third but never as close to the base of the cell as in *Systoechus*; 1st A cell contracted, towards the margin but always distinctly open; anal lobe and alula (axillary lobe) well developed, the latter always with a more or less short fringe of hairs; squamae with very tufted, furry, very long hairs (fringe).

Legs long, thin, bearing spicules with the femora and tibiae almost always covered with short, closely adpressed scales; coxae with long tufted pubescence, and femora with shorter, less tufted and soft pubescence; posterior femora with a ventral row of spiny bristles or strong spines; pulvilli distinct in all Egyptian species but in some cases it is said to be rudimentary or obsolete.

Abdomen round, short but arched, covered with dense, furry pubescence, which is, as a rule distinctly longer than that of the thorax, forming sometimes bundles on the sides and in which often long black hairs of a different texture occur; the presence or absence; the distribution of these black hairs usually present on the posterior border of the tergites, together with their length and strength are very useful for differentiating between certain species; hypopygium apparently of no value for specific determination and Engel (1937, *loc. cit.*, p. 198) in his preliminary remarks on the genus writes: "The structure of the epipygium is of astonishing uniformity, at most exhibiting in microscopical preparations a few minor differences in particular portions; otherwise there is hardly any difference from the structure which is found in related genera, such as *Dischistus*". Ovipositor with spines; these however are not often seen in dried specimens (as in *Dischistus*), owing to the dense felt-like mass of hairs which usually covers the ovipositor.

The biology of a few species of *Bombylius* is known. All are parasitic on solitary bees in the larval stage. In the introduction to the family on page 9, I have given a summary of Nielson's detailed account on the development of the larva of *Bombylius pumilus* Meig. (= *B. minor* L. apud Engel).

This genus contains some of the most beautiful and attractive species of the order and they possess most perfectly the power of « hovering »: they poise apparently motionless in mid-air defying the best efforts at capture and return fearlessly again and again to the same spot. The females hover in front of, and feed on, the blossoms of low-growing plants such as *Diplotaxis*, *Cheiranthus*, *Mathiola* and *Sinapis*, also on the flowers of low shrubs such as *Zilla spinosa*.

Bombylius is a very large genus even after shedding off *Dischistus*, *Systoechus*, etc., and in 1926, P a r a m o n o w (*Mém. Acad. Sciences Ukraine*, (T. III, livr. 5, p. 77) records ninety-four Palaearctic species, after deducting those described by older authors which were unrecognisable. Lately E n g e l (1937, *loc. cit.*, pp. 199-209) includes only some forty-nine actual species. In reaching this total he treats as subspecies or varieties a number of what have hitherto been regarded as valid species; he also omits some dozen or more others of which he has not been able to see specimens, and likewise also the species described by older authors.

The number of species of *Bombylius* recorded here, as belonging to the fauna of Egypt is fourteen, five of which being described as new. Two or three of these (*B. ater* Scop., etc.) have a wide distribution in Southern Europe but many are endemic to our fauna, and a few in no way differ from the Ethiopian type. What Mr. A u s t e n writes in his introductory note of the Genus *Bombylius* (1937, *loc. cit.*, pp. 13-14) applies so well to the representatives of our fauna, that I feel I must quote his own words: « While the determination of species of *Bombylius* with sharply defined and conspicuous wing markings presents no great difficulty, the identification of those in which the wings are either hyaline or merely show a faint brownish suffusion at the base is a very different matter, since most of the descriptions by the older authors of species belonging to this group are lacking in precision and in true diagnostic characters. For this reason one or other of the species treated below as new may ultimately prove to have been already described, although, in default of a comparison of types, such a result is unlikely. Unfortunately the dense coating of fine silky hair, with which the body of most species of *Bombylius* is covered, is peculiarly liable to removal by rubbing or careless handling; and when this has happened the natural appearance of a specimen, especially of one of the yellow haired species is usually entirely altered, the normally rotund and furry body becoming narrow, black and smooth ».

TABLE OF SPECIES

- 1 (2) Pubescence of body entirely black with short adpressed argenteous scales forming stripes on the thorax and spots on the abdomen.....
 **ater** SCOP.

- 2 (1) Pubescence of body never entirely black but white, pale yellowish, bright yellow or other shades of yellow or tawny and sometimes with some black (often longer) hairs intermingled.
- 3 (4) Wings with numerous brown spots **medius L. et vars.**
- 4 (3) Wings without spots.
- 5 (6) Wings more or less deep blackish-brown and this dark colour gradually becoming lighter towards the apex and lower border (usually much more evidently so in the male than in the female). General colour of body very dark, fuscous black **wadensis NOV. SPEC.**
- 6 (5) Wings never deeply infuscated with this colour gradually diminishing towards the tip and lower margin, and if with a blackish-brown or brown colour about the base, this colour never extending on more than the upper third (and never reaching the tip). General colour of body not fuscous black, and if dark with a whitish-grey or tawny colour.
- 7 (8) Wings with sharply defined mummy brown or sepia coloured fore border, extending from the base to the distal extremity of R_1 cell, usually with a deep indentation before its end and often with an isolated spot in R_3 cell **fimbriatus LW. et vars.**
- 8 (7) Wings without sharply defined fore border, if blackish-brown, brownish or brownish-yellow at base, then the coloured area quickly fades away before reaching the distal extremity of R_1 cell.
- 9 (16) Dorsum of thorax (and almost always that of abdomen, as well) in both sexes with more or less numerous long black hairs mixed with the paler hairs forming the bulk of the furry pubescence of the body.
- 10 (11) Pale pubescence of body in both sexes pure snow white on the sides of the thorax and on almost all the abdomen and only pale yellowish or dirty brownish-white on the dorsum of the thorax and scutellum. General colour of body blackish-grey or dusky neutral grey. Legs blackish with the middle and hind tibiae reddish-yellow or yellowish-brown on the basal two-thirds or rather more (obscured by dense yellow scales) **Catheriniensis NOV. SPEC.**
- 11 (10) Pale pubescence of body in both sexes never snow white on all the sides of the thorax and on almost all the abdomen and if whitish on the sides, then the rest of the pubescence on the dorsum (excluding the black hairs) is much darker (ochraceous or tawny) and if of a pale dirty yellowish or olive buff colour, without any black hairs (*cinerarius var. montana*). General colour of body never dusky neutral grey. Legs yellow or reddish-yellow with almost the apex of the femora and apical tarsal segments blackish.

- 12 (13) Eyes of male meeting for a distance quite as long as the length of the ocellar tubercle, in the female separated by a distance about twice (or rather more) as broad as the breadth of the ocellar tubercle. r-m cross-vein placed on the proximal third of 1st M_2 cell. First two segments of antennae usually reddish-yellow or reddish-brown but occasionally black (*var. montana*) **cinerarius PALL. et vars.**
- 13 (12) Eyes of male approximated but not meeting, of female separated by a distance which is quite three times the breadth of the ocellar tubercle. r-m cross-vein placed on or just before the middle of 1st M_2 cell. First two segments of antenna always black.
- 14 (15) Narrow space or line separating the eyes in male very short, not longer than the front ocellus. Wings in male usually tinged yellowish-brown about the base and anterior border to distal end of Sc cell, in female hyaline except at the extreme base and Sc cell yellowish or very pale brownish-yellow. General furry pubescence of body in both sexes tawny to cream buff (and black) and whitish on the sides and apex of abdomen with a dense undercoat (on abdomen) of short whitish sub-erect hairs (in male) or very short ochraceous and whitish decumbent scaly hairs (in female) **numida MACQ.**
- 15 (14) Line separating the eyes in male almost as long as the ocellar tubercle. Wings in both sexes more or less dark blackish-brown all across the base and upper two-thirds with the dark colour rapidly diminishing (but not entirely) towards the tip and lower margin. General colour of body in both sexes, owing to chamois or deep colonial buff pubescence (mixed with numerous long black hairs), dark raw umber except on the sides and apex of abdomen more or less pale Naples or straw yellow with a sparse undercoat of shorter suberect or even erect yellow hairs **cinerascens MIK.**
- 16 (9) Dorsum of thorax (and almost always that of the abdomen as well) in both sexes without black hairs.
- 17 (18) Eyes in male separated by a distance quite as broad as the breadth of the ocellar tubercle and in the female this distance is quite four times the breadth of the tubercle. r-m cross-vein placed distinctly after the middle of 1st M_2 cell. General furry pubescence of the entire body pale dirty yellowish-grey and whitish at the sides and apex of the abdomen in both sexes **androgynus LW.**
- 18 (17) Eyes in male distinctly meeting for a more or less long distance and in the female the eyes are separated by a distance which is never more than twice the breadth of the ocellar tubercle. r-m cross-vein placed on, before, the middle, or on the basal third or even fourth of 1st M_2 cell. General furry pubescence of body differently coloured.

- 19 (20) Colour of furry pubescence on entire body bright empire or mustard yellow. r-m cross-vein placed on or immediately before the middle of 1st M_2 cell **flavipes WIED.**
- 20 (19) Colour of furry pubescence on body never of such a vivid yellow. r-m cross-vein placed well before the middle or on the basal third of 1st M_2 cell.
- 21 (22) Pubescence of entire body yellowish-white or very pale yellowish-grey. Legs very pale yellowish except the apical tarsal segments blackish. Very small species (4 mm.). **minusculus NOV. SPEC.**
- 22 (21) Pubescence of body chamois, honey yellow, cream buff, chartreuse yellow or citron green. Legs reddish-yellow or brownish-yellow. Large, medium sized or small species (11-5 mm.)
- 23 (24) Pubescence of body chartreuse yellow or citron greenish-yellow, extreme apex only of abdomen in the male, with some short, soft white hairs **Moussayensis NOV. SPEC.**
- 24 (23) Pubescence of body more or less deep chamois to cream buff, without a trace of green colour. Apex of abdomen densely covered with short adpressed silvery white scales (usually in the male) or yellowish or cream buff scales (in the female).
- 25 (26) Antennae with the two first segments entirely black like the apical segment, and the pubescence on the basal segment always all black. Legs yellowish-brown or brownish-red but obscure blackish-brown on the coxae, trochanters, apex of, or on the entire femora, inner side of anterior tibiae and on all the tarsi (large species ; 6.8-11 mm.)...
..... **bedouinus NOV. SPEC.**
- 26 (25) Antennae black in the male but with the two first segments usually yellowish to reddish-brown in the female, and with the pubescence on the basal segment usually all yellowish or whitish in both sexes but sometimes mixed, black and yellowish. Legs pale reddish-yellow or brownish-yellow with the obscure blackish colour extending almost on the inner side of the apical third of the front tibiae and on the tarsi, but usually only the apical tarsal segments blackish
..... **modestus LW.**

Bombylius androgynus LW.

Loew (1855), Neue Beitr., III, 33, 62; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 162, 163, 8; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 26, 100; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 206, 211, figs. 105-107.

DIAGNOSIS :

A medium sized to fairly large species with the furry pubescence on the

entire body in both sexes pale yellowish-white or dirty greyish-white, easily distinguished from all other species in the male by the eyes which are separated by the breadth of the ocellar tubercle and by the total absence of black hair on the entire body (head, thorax and abdomen) in both sexes.

DESCRIPTION .:

♂ : *Head* (Pl. XXIX, figs. 434-436) covered with a fairly tufted pubescence which varies in colour from very pale yellowish white (white with a faint yellowish tinge) to chamois and without a black hair anywhere; this pubescence is, as usual, softer and paler in colour (from pure white to pale yellow) on the lower part of the head; upper third of occiput with very long upstanding hairs (whose colour varies as stated above) which intermingle with the similarly long and coloured pubescence of the anterior border of the thorax; eyes separated by almost the entire breadth of the ocellar tubercle (see page 301); proboscis black and about two and a half times the length of the head (including the antennae); palpi very short, more or less dark reddish-brown and with short, very sparse erect reddish hairs; antennae entirely black; first segment clothed with pubescence similar in all respects to that of the frons and face; second segment with very short pale hairs dorsally; third segment; subconical and only a little longer than the two first segments together.

Thorax with the furry pubescence not dense enough so as to conceal the black ground colour, characterized by the entire absence of any black hairs, without any indication of paler longitudinal stripes and varying in colour, from dirty yellowish-white to chamois; no chaetotactic bristles or bristly hairs; pleurae neutral grey with long tufted and furry yellowish pubescence on the upper part of the mesopleura and with a shorter, thinner and paler tuft of soft outstanding hairs on the sternopleura and pteropleura; metapleural fan long, tufted and yellowish; scutellum with very long upstanding soft, but not dense, pubescence, similar to that of the dorsum of the scutum and also without bristly hairs.

Wings either entirely hyaline with the veins cinnamon brown except the Sc and all the veins about the base much paler, or distinctly tinged chamois or cinnamon buff about the base and on somewhat more than the proximal half of the anterior border; position of r-m cross-vein rather variable as it may be placed on the middle, just after the middle, or well after the middle of 1st M_2 cell, and the latter is short and broad; alula yellowish-white with a very short pale yellowish fringe; squamae with a dark brown margin and a long, tufted whitish to pale yellow fringe; halteres cinnamon to pinkish-buff with the stem usually darker (obscured).

Legs yellowish-red except the coxae, the basal half (or rather more) of the femora blackish and the tarsi obscure brownish; coxae and femora

with longish, soft white hairs; bristles on ventral side of posterior femora and all the spicules reddish-yellow; femora and tibiae without scales but only with minute, adpressed whitish pubescence; claws black but reddish-yellow about the base; pulvilli pale cinnamon pink.

Abdomen with the furry pubescence which is distinctly longer but hardly more dense than that of the thorax also varying in colour from almost pure white (except about the centre at the base dirty white) to deep colonial buff; this pubescence is also characterized by the total absence of black hairs and of bristly hairs; venter neutral grey (owing to being black and covered with a thin white tomentum) with the lower border of all the sternites chamois or honey yellow, and bearing a soft, sparse, long pale yellowish pubescence; hypopygium (Pl. XXIX, fig. 437) obscure reddish-brown (more or less) with short stiff pale yellowish hairs.

♀: Very much like the male but the general pubescence on the entire body is coarser, the thorax with weak chaetotactic bristles, the scutellum and abdomen with bristly hairs and the wings are usually entirely hyaline, and if tinged yellow at the base, then the coloured area is paler and less extensive (on the upper border) than in the male.

Head (Pl. XXIX, figs. 438 and 439) with the eyes separated at the vertex by a space which is distinctly wider than three times the breadth of the ocellar tubercle; the long erect pubescence on the frons and face, as well as that of the basal antennal segment is much coarser (decidedly bristly), sparser than in the male and much darker in colour, from pale yellowish to olive ochre and shows a sparse undercoat of very short adpressed similarly coloured hairs; venter uniformly grey (without the lower border of the sternites differently coloured, as in the male) and with extremely sparse soft longish and pale pubescence; ovipositor reddish-yellow about the apex, apparently without spines and with short, stiff pale reddish-yellow hairs.

♂, ♀ Length of body : 7.5-10.2 mm., of proboscis : 4.3-5.2 mm., breadth (with wings expanded) : 14.5-21.5 mm.

Dr. Engel's remarks (1937, *loc. cit.*, pp. 211-212, figs. 105-107) concerning this species are most puzzling to me. He says : « The study of 7 specimens belonging to the Natural History museum of Vienna, sent to me by Dr. Zerny having increased my old doubts about the sex of this species, I have decided to remove the genitalia of two of the badly preserved specimens. I was now able to state that all the specimens considered as males with wide frons were actually females. There was only one male specimen in the Viennese collections, collected together with two females by Mik at Sabbioncello, and which is without doubt the male of these females. It is distinguished from the specimens which now will have to be called « females with narrow frons » (fig. 33) and which corresponds to Loew's

description in the following characters : the eyes, whose facets are enlarged in the same way as in the female, touch on the frons for a length equal to that of the ocellar tubercle.... ». After describing both sexes Dr. Engel says : « The female is distinguished from the females of other species by the fact that on the frons the eyes are separated only by the width of the ocellar tubercle and by the complete absence of black hairs on all parts of the body.... ». The most intriguing point, however, lies in the fact that after giving a detailed description of what he calls an aberrant female (with the facets of the upper surface of the eyes enlarged, undoubtedly a male character), he ends the description of this so-called female by « Das *Epipyg*-ist sehr klein und gelb » !

The six females I have examined from Egypt and which had been determined by my late friend and colleague, the late Dr. Bezzi, in 1925 as *B. androgynus* Lw. do not possess male sexual characters; likewise all the seven males in Egyptian collections entirely agree to Loew's original description and possess the eyes separated by a width almost, or quite as broad as the width of the ocellar tubercle. Mr. Paramonow (1925, *loc. cit.*, p. 100) lays stress on this male character (the separation of the eyes) and unfortunately neither he, nor Dr. Engel have examined specimens from Egypt.

B. androgynus is also known from Dalmatia (Sabbioncello) and, according to Engel from Albania, Pamir and Greece.

B. androgynus is not common in Egypt; during my last twenty years collecting activities I have captured only four males and six females and all from the Eastern Desert in the wadies South East of Helwan, Wadi Hoff and Wadi Morrah. Three other male specimens exist in the collections of the Entomological Section, Ministry of Agriculture, one collected by the late Mr. Storey (Wadi Hoff, 10.III.1916) and the two others by Mr. Kirkpatrick (Wadi F., a branch of Wadi Hoff), 24.II.1922. My dates extend from 20.II. to 24.III.

***Bombylius ater* SCOP.**

Scopoli (1763), *Ent. carn.*, 376, 1021; Schaeffer (1779), *Icon. ins.*, t. LXXIX, f. 6; Schrank (1781), *Ins. Austr.*, 1006, *et* (1803), *Faun. boi.*, III, 174, 2582; F. (1781), *Spec. ins.*, II, 473, 6, *et* (1794), *Ent. Syst.*, IV, 410, 12, *et* (1805), *Syst. Anth.*, 133, 22; Cyrill. (1787), *Entom. Neap. Specim.*, t. XII, f. 9; Gmelin (1788), *Syst. Natur.*, V, 2903, 5; Mikan (1796), *Mon. Bombyl. Bohem.*, 47, t. III, f. 9; Meigen (1804), *Klass.*, I, 185, 16 *et* (1820) *Syst. Besch.*, II, 195, 11; Macquart (1834), *Suit. à Buff.*, I, 378, 4 *et* (1840), *Dipt. éxot.*, II, 1, 97, 28, t. VII, f. 4; Zell. (1840), *Isis*, 28; Gimn. (1847), *Bull. Soc. Imp. Nat. Moscou*, XX, 3, 217,

5; Walker (1849), List Dipt. Brit. Mus., II, 282; Loew (1855), Neue Beitr., III, 9, 5; Schiner (1862), Faun. Austr., I, 59; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 162, 163, 1; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 29, 103; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 200, 215; Austen (1937), Bombyl. of Palestine, 15, 20, 3.

SYNONYMY :

pseudargentatus Param. (1929), Mém. Acad. Sciences Ukraine, T. XIII, livr. 1, 189 (191), (*nomen nov. pro argentatus* Beck. (non F.)); Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 258, fig. 115.

DIAGNOSIS :

A medium sized to fairly large jet black species with the pubescence of prevalent black colour, with glistening silvery spots of squamose hairs on head, thorax and abdomen and with the hyaline wings possessing a wedge-shaped mummy brown to blackish-brown area on the upper border of the proximal half including darker markings.

DESCRIPTION :

♂ : Head (Pl. XXIX, figs. 440-442) with stiff, long, very dense bushy black pubescence covering the face, jowls, most of the frons and upper third of the occiput as well as the ocellar tubercle and with two somewhat triangular glistening silvery spots of closely adpressed squamose hairs, on the frons, one on each side of the base of the antennae and touching the front eye margin; in addition, the occiput bears a few adpressed glistening silvery white scales on each side of the upper border and scattered about the base of the tuft of long black hairs occurring in this area; eyes touching above for a distance which is longer than, or at least as long as, the length of the ocellar tubercle; proboscis and palpi black, the former only a little longer than the length of the head (including the antennae); antennae black; third segment narrow cylindrical and about one and a half times the length of the two first segments together; first segment clothed above and on the outer side with long stiff black hairs, and below with some shorter, less coarse whitish or greyish hairs.

Thorax jet black with a pair of more or less broad admedian longitudinal stripes on the dorsum formed by very short, closely adpressed silvery white scales, extending from the upper border, where they curve outwards, to the lower margin and with some similar but usually more scattered scales on the lateral margins; the longer erect pubescence about the centre of the dorsum is very sparse and blackish but on the anterior border and sides much

more dense and consists of coarse, erect black hairs mixed with numerous shorter and softer grey hairs; pre-alar and postalar bristles black; pleurae bearing a thin reddish-brown tomentum which gives them a distinct rusty red tinge and with all the pubescence black except for a conspicuous white tuft of long hairs on the upper margin of the metanotum (in addition to the dense black tuft below) which stand vertically upwards beneath the postalar calli; scutellum with very short, adpressed silvery white scales spread broadly about the margin, which give the impression of being the posterior extensions of the two silvery white, admedian longitudinal stripes on the dorsum of the thorax and with long sparse mainly black hairs and very few grey hairs on the sides.

Wings hyaline with a wedge-shaped blackish-brown marking on the fore border, extending from the base of the latter to the apex of the Sc cell, including about four darker spots as follows: one immediately below and touching the base of the stem of the fork $R_4 + R_5$ close to its point of bifurcation with $R_2 + 3$, one on the r-m cross-vein, and one in the proximal lower corner of 1st M_2 cell immediately below the latter, on the m-cu cross-vein; r-m cross-vein placed a little before the middle of 1st M_2 cell and the latter is broad and comparatively short; alula mummy brown with a short white, or mixed black and white fringe; squamae blackish with a longish white fringe; there are longish, soft, somewhat curly white hairs about the base of the costa; halteres brownish-black with the apex of the knobs paler.

Legs as well as the pubescence on the coxae, on the underside of the femora and all the spines and spicules on the tibiae and tarsi black; ventral row of spines on posterior femora black; claws black; pulvilli olive buff.

Abdomen jet black with silvery white spots on the dorsum composed of very short adpressed scales forming three longitudinal rows; basal segment unspotted; second segment with a pair of quadrate silvery white spots, one on each side, close to the upper margin and one much smaller rounded or oval median spot immediately above the lower border; third segment with the median small spots as in the preceding segment but with the two side spots extremely reduced in size (as if the silvery white scales had been mostly rubbed off), and sometimes quite absent; fourth to sixth segments each with three spots as on the second segment, but here the spots are almost in a transverse row (owing to the reduced length of the segments) and often the small median spot on the fifth and sixth segments are almost effaced or totally absent; the pubescence is entirely black, on the dorsum very long and very sparse but all about the lateral margins it forms a characteristic tufted and bushy fringe which makes the abdomen appear unusually broad; venter uniformly black with longish sparse black pubescence; hypopygium black.

♀ : Extremely like the male.

Head (Pl. XXIX, fig. 443). Eyes separated on the vertex by a distance which is about three times the breadth of the ocellar tubercle. The silvery white scales on the dorsum of the thorax are more numerous than in the male and consequently the two admedian silvery white longitudinal stripes and the lateral margins of the disc are more apparently white; ovipositor black.

♂; ♀ Length of body : 6.2-8.5 mm., of proboscis : 2.1-3.1 mm.; breadth (with wings expanded) : 13.5-17 mm.

This species is one of the commonest of the genus in the neighbourhood of Cairo. I have more than fifty individuals of each sex captured between February 20th and April 5th (most specimens in March) at Abu Rawash, Kerdasah, Kafr Hakim, Kafr el-Dems, Mehallah, El-Katta, El-Magadlah. Becker's record of a female specimen of *B. argentatus* F. from Port-Said, Makalla=Mahalla or Mallaha? (Simony, jardin d'eau douce, 4 avril 1899) [Becker (1910), *Denkschr. Acad. Wiss. Wien*, Bd. LXXI, 134, 11] and for which the new name of *pseudargentatus* is proposed by Mr. Paramonow (1929, *loc. cit.*, p. 189 [191]) refers without doubt to a local form or variety of this species. I have no other record of *B. ater* from any other part of Egypt, and it is surprising that it is not represented, so far in the Mariut fauna. Mr. Austen (1937, *loc. cit.*, pp. 20-21) records this species from several localities in Palestine and at the same time he describes the male only of a closely allied species, *B. simulans* (figured in colours, in the frontispiece) from Jaffa district and Jerusalem to Beirut (Syria). The distinguishing characters of Mr. Austen's species, when compared with those of *B. ater* are not too convincing to me and I doubt that *simulans* Aust. can maintain its specific rank.

B. ater has a very wide geographical distribution, particularly in the southern part of the Palaearctic Region including Germany, Austria, Spain, S. France, S. Italy, Macedonia, Albania, Bosnia, Dalmatia, Ukraine, the Caucasus, Transcaspia, Astrabad and Siberia.

***Bombylius bedouinus* NOV. SPEC.**

DIAGNOSIS :

A rather large plump fly whose furry pubescence on the thorax is from pale chamois to deep honey yellow, and on the abdomen cream buff to chamois in both sexes except in the male about the tip where it is much paler, almost whitish and where it covers and surrounds an undercoat of short, dense, closely adpressed silvery white scales; eyes in the male meeting for a space almost twice the length of the ocellar tubercle, and in the

female separated by a comparatively short space being not more than twice the breadth of the ocellar tubercle.

DESCRIPTION :

♂ : *Head* (Pl. XXX, figs. 444 and 445); frons brownish-grey, clothed with erect black hairs which are not very dense and shorter than the ones forming the tuft on the ocellar tubercle; the black hairs on the frons are usually situated on both sides of the almost bare median furrow, and above (in the upper angle of the triangular frons) as well as between them there are a few short decumbent yellow hairs; at the sides of the lower border of the frons, on each side of the base of the antennae there is a very dense tuft of short decumbent glistening pale yellow hairs; face grey tomented and clothed above and on the outer borders of the cheeks with long erect black hairs (forming the frame of the beard) and the rest of the pubescence on the face is shorter, softer, less erect than the latter and almost all yellowish to deep chamois, with only a few black hairs intermixed above the upper mouth margin; on the jowls the pubescence is very sparse short and paler except for a few black hairs on the sides, behind the posterior mouth margin; occiput with short erect chamois pubescence (about half the length of the black hairs on the ocellar tubercle) behind the upper half of the head forming a very regular and even fringe or collar; proboscis black, almost twice as long as the head (including the antennae); palpi blackish-brown with sparse, erect, obscure microscopic pubescence; antennae black; third segment sub-conical, about one and a half times the length of the two first segments together and bare; first segment with long stiff black hairs above, on the sides and below; second segment with some very short stiff black hairs above.

Thorax with a dull black ground colour which is obscured by dense chamois to honey yellow pubescence; this pubescence, on the upper border and sides of the anterior half of the disc, besides being very dense is perfectly equal just as if it had been shorn, but about the centre, the erect honey yellow pubescence is very sparse and distinctly shows an undercoat of similarly coloured but much shorter adpressed hairs; on the sides of the lower half of the disc the pubescence is very long, tufted and cream buff in colour; pre-alar and postalar bristles yellow; pleurae grey with the pubescence entirely cream buff; metanotum with very long dense, tufted cream buff pubescence forming the fan; scutellum with a similarly coloured, soft, erect (but not dense) pubescence as the dorsum of the thorax and with several long but not strong pale yellow marginal bristles.

Wings hyaline but usually with a light cinnamon brown to darkummy brown area all across the base (including the alula) and the upper margin

as far as the tip of the Sc cell, but the lower margin of this more or less dark part, sloping steadily though irregularly upwards from the end of the alula to the basal portion of 1st M_2 cell, to the base of the fork R_2+3 and R_4+R_5 , and to the apex of Sc cell; often however this coloured area is extremely light and insignificant and the wings are hyaline with the basal third and the Sc cell only very feebly tinged warm buff; r-m cross-vein placed just before or well before the middle of 1st M_2 cell and this latter cell is comparatively narrow and elongate; the stout black basal part of the costa is covered with dense, short, adpressed cream buff scales above and short but stiff black spines in front; alula varying according to the colour of the wing base as described above, and with a minute dark brown fringe which gradually becomes longer towards the base, until it forms long conspicuous pale golden yellow hairs along the basal edge (almost as long as the hairs forming the fringe of the squamae); squamae mummy brown to pale blackish-brown with a broad blackish margin and a long, dense, pale golden yellow or cream buff fringe; halteres obscure yellowish-brown to mummy brown and somewhat hidden in the long dense pubescence.

Legs with the coxae and trochanters blackish and the former clothed with long pendent cream buff or pale yellowish hairs; femora obscure blackish brown to pale brownish or yellowish-red except at the tip, blackish dorsally with short, soft, sparse erect pale yellowish pubescence and very short, dense closely adpressed yellowish to white scales; tibiae yellowish-red but the anterior pair blackish on the inner side (mainly due to minute black pubescence) and the posterior tibiae often obscured about the tip; the minute pubescence is whitish on the middle and hind tibiae but on the front pair blackish on the inner half (as stated above), and scaly and yellow (often) on the outer surface; tarsi obscure blackish (mainly owing to dense minute black pubescence) but the metatarsi of the posterior legs are often reddish-brown (less obscured); all the spines on the ventral side of the hind femora and the spicules and spurs on the tibiae and tarsi are black; claws black; pulvilli olive buff to light avellaneous.

Abdomen dull black but obscured by very long, dense, furry pubescence which is entirely cream buff on all the basal two-thirds but much paler, almost white on the rest; the triangular apex of the dorsum of the abdomen (which is partly hidden beneath the long whitish hairs) is densely clothed with short closely adpressed silvery white scales; venter gull grey with the lower border of most of the sternites chamois coloured, showing long and narrow transverse shining black pits, with long but very sparse soft cream buff pubescence, and an undercoat of much shorter, sparse, adpressed shining pale yellow hairs; genitalia (Pl. XXX, fig. 446) more or less dark reddish-brown with longish erect yellow pubescence.

♀ : Extremely like the male but the general pubescence on the thorax and abdomen (as well as on the head) is shorter and distinctly coarser, particularly on the abdomen where there is a row of long bristly hairs or weak bristles on the lower border of the segments, some of which are often black : also the thorax, scutellum and abdomen possess an undercoat (quite dense on the abdomen) of very short, adpressed cream buff hairs ; the wings are usually hyaline and yellow about the base and the Sc cell.

Head (Pl. XXX, figs. 447 and 448) with the general pubescence shorter and less dense than in the male ; frons at the vertex distinctly less than one third the width of the head because the eyes are separated by a distance which is not more than twice the breadth of the ocellar tubercle ; the middle part of the light cream buff tomented frons bears some short decumbent amber yellow hairs which become a little longer and quite tufted (also usually somewhat paler) on the sides of the base of the antennae, and on the sides of the upper half of the frons there are much longer stiff, upstanding black hairs, about as long as the black hairs forming the tuft on the ocellar tubercle and which seem to be a lower extension of the latter, but on the lower half the erect black hairs are even fewer and only half as long as those above ; face with the pale yellow or pale cream buff pubescence less dense, shorter but coarser than in the male and the black hairs forming the frame of the beard are usually much more reduced in number and sometimes all pale yellow ; the correspondingly shorter and less numerous erect pubescence on the first segment of the antennae is usually black above and on the sides but pale yellow beneath and occasionally two or three of the hairs on the dorsal side are pale. Ovipositor covered by short, closely adpressed yellowish scales, ochraceous tawny at the apex, with short, soft erect pale yellow hairs and with yellowish-red spines.

♂, ♀ Length of body : 6.8-11 mm., of proboscis : 4.5-5.5 mm. ; breadth (with wings expanded) : 15-21 mm.

Eighteen males and seventeen females, including the types, of this species were collected by myself and my two assistants Tewfik and Shafik Effendis in the neighbourhood of St. Catherine Monastery, at Rabba, Wadi Shellalah and Wadi el-Legaa at an altitude between 1700 and 1900 metres between April 19th to the end of June (1939-1943). There exists no other record of this species from other localities in Egypt.

Bombylius Gatheriniensis NOV. SPEC.

DIAGNOSIS :

A medium sized dusky neutral grey species with the furry pubescence of the body consisting, in both sexes, of pure white or snow white hairs (particularly on the sides) among which are intermingled numerous black

hairs (very long and shaggy on the abdomen) except about the centre of the dorsum of the thorax and scutellum where the pale pubescence (particularly in the female) is of a pale yellowish or dirty brownish-white colour.

DESCRIPTION :

♂ : *Head* (Pl. XXX, figs. 449 and 450) with the eyes very approximated but separated by an extremely narrow, fine line (particularly in the centre) which is about twice as long as the ocellar tubercle; this tubercle is deep neutral grey and bearing a rather thin tuft of longish upright and forwardly directed hairs most of which are usually black, and a few white; frons clothed with short adpressed silvery white hairs but which are so dense, that they appear almost glued down together except on the extreme upper angle, which is bare; face and genae deep olive buff tomented and clothed with long, tufted, outstanding pure white hairs framed on the sides and above by equally long black hairs in several rows; occiput pale gull grey tomented and clothed with dense, erect, tufted, soft but not long, pure white pubescence which, when viewed from in front forms an unusually thick snow white collar; proboscis black, more than twice the length of the head (including the antennae); palpi blackish-brown or obscure cream buff about the centre of the apical segment, clothed with very sparse, minute, erect yellowish or brownish hairs and bearing apically, one or two long, stiff (almost bristle-like) brownish hairs or setae; antennae blackish third segment elongate conical, only a little longer than the two first segments together, and usually bare but occasionally with one or two (rarely) minute stiff, dark hair dorsally near the apex; first segment clothed above, on the outer sides and beneath with long stiff black hairs and the second segment with very short stiff black hairs above and on the outer sides.

Thorax dull blackish but bearing an extremely thin brownish tomentum which gives it a feeble but distinct (especially when viewed in certain lights) dark olive buff tinge; the pubescence on the sides is longish, erect, dense and mixed, pure white and black but about the centre of the upper third the pale hairs are yellowish or of a dirty white colour; on the lower two-thirds of the dorsum the pubescence is very sparse, much shorter and also mixed black with very short pale yellowish hairs; about two black pre-alar bristles; pleurae olive buff tomented to grey with most of the soft longish pubescence pure white except on the upper border of the mesopleura where there are numerous long black hairs mixed with the white ones; metapleura with a tuft of long white hairs forming the fan; scutellum with long upstanding untidy looking but not dense, dirty white pubescence about the margin but with a few (or very few) of the hairs black, and with much

shorter, very sparse sub-erect pale yellowish hairs about the base and the centre of the disc.

Wings more or less obscurely tinged mummy brown about the base and the fore border to beyond the apex of the Sc cell and with the coloured area (when deep mummy brown and conspicuous) forming a somewhat wedge-shaped marking, not unlike that found in *ater* but without darker markings or spots; often however the wings are almost all hyaline with only a feeble infuscation about the base and the basal third of the anterior half; position of r-m cross-vein very variable as it may be placed after, on, or before the middle of 1st M_2 cell and the latter is usually short and broad; alula more or less weakly infuscated and with a short pale yellowish fringe; squama mummy brown, with a blackish margin and a dense white fringe; halteres with the stalk mummy brown and the knobs usually warm buff.

Legs with all the coxae, trochanters and femora blackish; anterior tibiae and tarsi obscure blackish-brown; middle and hind tibiae pinkish-buff or cinnamon buff and often somewhat obscure blackish-brown about the apex; middle and hind tarsi obscure dark brown or blackish-brown; coxae with long soft pendent whitish hairs; the sparse, soft but outstanding pubescence on the front and middle femora, is mixed, black and whitish and on the posterior femora the very few long hairs on the ventral side only, near the base are yellowish; the very short closely adpressed scales on the front femora and tibiae are white all over but on the middle and hind legs they are also white on the dorsal side but distinctly yellow on the sides and below; the spines on the ventral side of the posterior femora and the spinules and spurs on the tibiae and tarsi are black; claws black; pulvilli rather short, pale olive buff.

Abdomen dull black, clothed with long furry pubescence only on the sides with a few longer shaggy black hairs intermingled with the dense white to deep olive buff hairs, but on the dorsum the long hairs are very sparse, the black ones being also longer but more numerous than the very few pale yellowish or dirty yellow hairs, and show an undercoat of fairly dense, short decumbent white to pale dirty yellow hairs; venter pale olive grey tomented with the sides and the extreme lower border of the sternites deep olive buff, and with about four small elongate oval shining black pits on each of the third to sixth sternites (two pairs, admedian); the pubescence on the venter consists of a few very scattered soft long pale yellowish hairs and much more numerous, often dense, short, decumbent white ones; hypopygium (Pl. XXX, fig. 451) clay colour or tawny olive with longish stiff reddish-yellow hairs.

♀ : Very similar to the male and the wings are usually entirely hyaline

except at the base feebly infuscated, the mummy brown coloured area described in the male, being rarely present.

Head (Pl. XXX, figs. 452 and 453) deep olive buff tomented all over but sometimes the occiput is very pale gull grey; eyes at the vertex separated by a space equal to almost or quite three times the breadth of the ocellar tubercle; frons with a very characteristic pubescence consisting of long erect black hairs on the outer two-thirds of the upper half (or rather more) leaving the middle third almost bare, followed by shorter recumbent black hairs, and on the middle third of the lower border, short adpressed shining yellow hairs which become much more dense, very closely adpressed, and almost pure silvery white on each side (resembling the silvery tufts on the frons of the male); the pubescence on the face and genae, in addition to being much less tufted than in the male is much darker, the black hairs forming the frame of the beard being much more numerous and the pale hairs are shining deep olive buff.

Ovipositor with reddish-yellow spines.

♂, ♀ Length of body : 6.2-10.5 mm., of proboscis : 4.2-5.4 mm.; breadth (with wings expanded) : 13.8-19.5 mm.

I have captured twenty males and an equal number of females of this apparently endemic species, including the types, in the neighbourhood of St. Catherine Monastery (El-Rabba and Wadi el-Legaā) in South Sinai at 1700 metres altitude between the 10th and 25th of April 1939-1940. I have no other record of this fly from other localities in Egypt.

***Bombylius cinerarius* PALLAS**

Pallas *apud* Wiedeman (1818), *Zool. Mag.*, 1, 2, 24; Wiedeman (1821), *Dipt. exot.*, 1, 167, 13, *et* (1828), *Aussereurop. zweifl. Ins.*, I, 339, 14; Loew (1855), *Neue Beitr.*, III, 33, 61; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, livr. 5, 97, 51, 109; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, *Bombyl.*, 207, 220.

DIAGNOSIS :

A rather small to large extremely variable species with the wings hyaline except the base often brownish; the two first segments of the antennae frequently and sometimes the base of the third segment as well, reddish-yellow; the thorax varying from pale dirty yellowish-white (pure white on the sides) to olive ochre and always with two fairly distinct paler longitudinal stripes on the dorsum, and with the dense pubescence on the abdomen usually composed of tawny to pure white hairs on the two first segments, black and tawny to black and reddish-yellow hairs on the third to fourth or fifth segments and whitish to pure silvery white hairs or short adpressed scales (in the male) about the apex.

DESCRIPTION :

♂ : Head (Pl. XXXI, figs. 454 and 455, and Pl. XXXII, figs. 470 and 471) with the eyes meeting for a distance which equals from one and a half to quite twice the length of the ocellar tubercle, and the latter always with a thin tuft of longish erect black hairs (shorter than those on the first segment of the antennae); frons silvery white tomented with short, very dense, adpressed silvery white pubescence on each side of the bare median furrow, among which is intermingled (on both sides, above the base of the antennae) a tuft of erect but not long black hairs (*var. elbayensis nov.*), or all the pubescence on the frons (the adpressed and the longer, more up-standing hairs) may be silvery white without admixture of black hairs (*var. montana nov.*); face pale gull grey, with sub-erect, not long and not dense pubescence which may be pure white everywhere (*var. montana nov.*) or mixed, black and chamois with a broad but thin frame of somewhat shorter and weaker black hairs (*var. elbayensis nov.*); the lower half of the cheeks is bare and the broad mouth margin is pale reddish-yellow; occiput white to cream buff tomented with very short decumbent pure white to cream buff scaly hairs on the upper half, immediately behind the eye margins and followed by a dense, very even, erect row of short hairs (forming the collar) which may be very pale yellowish-white (*var. montana*) or chamois (*var. elbayensis*); proboscis black except at the base reddish-yellow and from two and a half to three times the length of the head (including the antennae); palpi reddish-yellow to reddish-brown with minute sparse, mixed blackish and yellow pubescence, and with a few much longer stiff hairs below which may all be yellowish, or mostly black and two or three yellowish; antennae with the two first segments entirely reddish-yellow, entirely black, or blackish with the apex of the first, and both extremities of the second, segments reddish-yellow; first segment clothed with longish erect pubescence all over (except on the inner side) which may be all white (*var. montana*) or all black (*var. elbayensis*); third segment elongate conical or sub-conical, black, except at the extreme base usually reddish-yellow and about one and a half times the length of the two first segments together; basal segment of style black and the apical cylindrical segment as well as the terminal rod yellow to brownish-red.

Thorax black, covered with a thin white tomentum which gives it a distinct pale gull grey tinge (*var. montana*) or the tomentum may be brownish and the background assuming then, a decisive deep snuff brown colour (*var. elbayensis*) and showing distinctly (although not conspicuous) two ad-median and one much narrower, pale, median longitudinal stripes on the dorsum; the pubescence on the upper third or fourth and sides of the disc,

besides being very dense and perfectly even just as if it had been shorn, varies from pale dirty yellowish-white (almost pure white on the extreme sides and upper margin : *var. montana*) to deep honey yellow (and paler on the extreme upper margin and sides : *var. elbayensis*), but on the rest of the disc the erect pubescence is very sparse and shows an undercoat of very short decumbent or adpressed pale yellowish to glistening golden yellow pubescence; in the pale coloured variety (*montana*) there is no trace of black or brown hairs anywhere and the three pre-alar as well as the long and strong postalar bristles (the latter accompanied or surrounded by equally long pale yellowish bristly hairs) are reddish-yellow but in the honey yellow or darker variety (*var. elbayensis*) there are numerous dark brown, almost blackish hairs on the disc which, when the insect is seen from the front (the light coming from behind), form a large, obvious M-shaped marking and the three pre-alar bristles are reddish-brown and the postalar black with only one or two of the bristles reddish-brown and the latter surrounded by numerous coarse black bristly hairs among which are interspersed some softer, yellow hairs; pleurae covered with a thin pale yellow tomentum and with long dense light cream buff pubescence (*var. elbayensis*) or with white tomentum and pure silvery white pubescence; scutellum of dull black ground colour, with a similar pubescence as the lower third of the dorsum of the thorax, namely with most of the erect but sparse hairs on the disc black and a few honey yellow, showing an undercoat of very short, adpressed shining golden yellow or yellow ochre, hairs and the numerous marginal and some premarginal bristles and bristly hairs all black (*var. elbayensis*) or with most of the erect but sparse hairs on the disc pale yellowish showing an undercoat of very short decumbent pale yellowish hairs and the numerous premarginal and marginal bristles and bristly hairs mostly black with a few reddish-yellow (scattered here and there but mainly on the margin, near the base) (*var. montana*).

Wings entirely hyaline except at the base and the Sc. cell warm buff or hyaline with a cinnamon brown area across the base (including the alula) and the upper margin as far as the tip of the Sc cell; r-m cross-vein always placed well before the middle of 1st M_2 cell and sometimes on the basal third of this cell; alula varying according to the colour of the base of the wings as described above and with a minute dark brown, almost blackish fringe which gradually becomes paler and longer towards the base until it forms long whitish to pale yellow hairs along the basal edge (almost as long as the hairs of the squamal fringe); squamae tawny or russet to cinnamon brown with a dark brown margin and a long, dense, whitish to pale yellowish fringe; halteres obscure mummy brown to brownish-red with the apical half of the knob honey yellow.

Legs usually reddish-yellow except the coxae and the apical half of the trochanters obscure dark reddish-brown and both segments clothed with longish, pendent hairs which vary from pure white to cream buff; femora with sparse soft longish white to pale yellowish hairs on the basal third ventrally, and with very short closely adpressed scales which are usually white on the basal half and yellowish on the rest of the segment; tibiae with minute reddish-yellow pubescence and with some similarly coloured scales or scaly hairs; tarsi with minute bristly black pubescence which gives them a much darker appearance (dark brown); the spines on the ventral side of the hind femora and all the bristles and spurs on the tibiae and tarsi are black; claws black but obscure reddish-brown at the base; pulvilli small, very pale cream buff or almost whitish.

Abdomen of dull black ground colour; in the dark form (*var. elbayensis*) with the long erect and tufted pubescence mostly honey yellow to yellow ochre except about the apex from pale yellow, to pure whitish, and towards the middle (on the lower border of the second and upper third or half of the third segments) with most of the long erect hairs black, forming a broad conspicuous black band right across the abdomen; in addition to the latter there is usually a tuft of black hairs mixed with some yellow ochre ones on each side of the fourth segment forming two blackish spots, below the transverse black band; the dorsum of the second segment shows a sparse undercoat of very short decumbent yellow hairs (owing to the long pubescence being more sparse there, than elsewhere) and there are more or less numerous black hairs intermingled among the honey yellow pubescence on the middle two-thirds of the fourth and fifth segments; the three apical segments show beneath the long very pale pubescence a very dense undercoat of short adpressed yellow hairs about the middle third and silvery white scales on each side; this median longitudinal yellowish stripe (of short adpressed hairs) is sometimes very pale, often possessing a few long pale hairs, as well as some black ones and often the apical half or more of the abdomen shows a narrow pale yellowish median longitudinal stripe formed of a similar undercoat of short hairs appearing as an upward extension of the undercoat covering the apex; in the pale form (*var. montana*) the long erect pubescence is somewhat shorter and less tufted, the yellow pubescence is of a paler, brighter colour (being pale ochraceous orange), the black hairs are decidedly less numerous and forming a narrower transverse band across the middle of the abdomen, and the undercoat of very short adpressed hairs on the two basal segments is almost pure white, much more dense, more conspicuous and extends down to the apex in a narrow but whitish and well apparent mid-dorsal line; the black hairs forming the two blackish spots, one on each side, below the black transverse band are also fewer in number and present, one on each outer border of the third segment; apex of abdo-

men almost as in *var. elbayensis* but the narrow, white mid-dorsal stripe (of very short adpressed hairs) is usually very conspicuous and divides the yellow middle third of the dorsum into two elongate ochraceous orange spots; venter tawny olive in *var. elbayensis* with all the pubescence, very long near the base, shorter and tufted on the sides near the base, and much shorter and sub-erect elsewhere, chamois, but in *var. montana* the venter is gull grey with the lower border of the first four segments cinnamon buff with all the long erect hairs at the base and sides, as well as the very short adpressed scales about the centre, pure white; genitalia (Pl. XXXI, fig. 456) very dark reddish-brown, but much paler about the apex (reddish-yellow), with longish chamois to pale yellowish or whitish erect pubescence among which are interspersed more or less numerous black hairs (especially beneath).

♀ : Not unlike the male but in *var. elbayensis* the design on the dorsum of the thorax is much more conspicuous and the abdomen, whose long erect mixed yellow ochre and black pubescence is less dense and shorter, shows a dense undercoat of very short adpressed scales and hairs forming a design which is rather different to that found in the male.

Head (Pl. XXXI, figs. 457 and 458 [*var. elbayensis*]) covered with a pale yellowish-grey tomentum all over; frons at the vertex distinctly less than one third the width of the head because the eyes are separated by a distance which is about twice the breadth of the ocellar tubercle; frons bare above, about the centre but on the sides with some long erect honey yellow hairs (and two or three black) and all the lower two-thirds with dense very short decumbent or adpressed glistening white to very pale yellowish scales and scaly hairs which become more tufted below and on the sides of the base of the antennae; face clothed with an undercoat of very short decumbent white scales or scaly hairs and sparse long erect hairs (forming a shabby beard) which may all be white to pale yellow, or with a few black hairs mixed with the pale hairs but which are always (together with the very short adpressed scales of the undercoat) more or less deeper yellow below, all around the margin to the mouth; ocellar tubercle with a larger tuft of longer erect black hairs than in the male; occiput with the dense erect hairs on the upper third paler, longer and forming above a higher and much thicker collar than in the male.

Thorax clothed with a dense undercoat of very short adpressed white and yellow hairs and with the erect pubescence, which is a little shorter and less dense, as usual, than in the male, composed of white to yellowish, black and honey yellow hairs, the latter two mixed and forming three broad, conspicuous black longitudinal stripes on the dorsum; the middle stripe which is very narrow above, on the upper margin, broadens very gradually downwards and on the anterior half of the disc is formed by black hairs

which are divided in the centre by a narrow line of yellow hairs, and on the lower half of the disc the black erect hairs rapidly decrease in number and the stripe is formed mainly of very short, adpressed scaly hairs (of the undercoat) which is yellow ochre on both sides (of the stripe) and pure white in the centre; the two much shorter side stripes are oval in shape and formed mainly by erect black hairs among which are interspersed some erect and some very short, adpressed yellow hairs; when the fly is examined from the front (with the light coming from in front) the thorax appears white to light cream buff with a median, narrow V-shaped blackish marking and two admedian blackish longitudinal stripes. Wings and legs as in the male, although the legs are often of a darker orange yellow colour and the tarsi more deeply obscured.

Abdomen when examined from above (with the light coming from in front) with the undercoat of very short, adpressed scales on the anterior two-thirds of the basal segment from pure white to very pale yellowish and extending conspicuously down to the apex in a narrow white mid-dorsal line; the long, erect pubescence, which is less dense but coarser than in the male owing to the black hairs being much longer than the yellow ones and decidedly coarse and bristly, is mixed black and honey yellow or black and ochraceous yellow, from the posterior third of the second segment down to the apex, and on the outer borders of the fourth segment there is a tuft of pure white erect hairs forming two white side spots, and sometimes similar white tufted hairs occur on the extreme side margins of the fifth and sixth segments, thus making the two white side spots larger and more apparent. When the abdomen is viewed from behind the transverse black band on the lower third of the second and upper border of the third segments, as well as the two blackish spots on the lower half of the lateral borders of the third segment, all of which formed by black bristly hairs (among which occur a few yellow hairs) are well apparent; ovipositor surrounded by erect shabby black and yellow pubescence and with very dense soft, longish, silky reddish-yellow hairs apically which form thick fringes overlapping each other, and entirely cover the opening (hence the spines if present, are entirely concealed beneath these fringes).

Head in *var. montana* as in the preceding but with some of the erect hairs, on the sides of the frons and on the first segment of the antennae black.

Thorax and scutellum without any design as the entire vestiture (the long erect hairs as well as the very short adpressed hairs or scaly hairs) is of a uniform light cream buff colour, except for a very few (about five) black hairs scattered about the centre of the dorsum.

Abdomen also without design as the vestiture is almost of uniform pale

dirty yellowish or olive buff colour, although the very short, adpressed scales on the anterior half of the segments and about the apex are of a distinct although feebly deeper yellow colour (cream buff to chamois) than the rest of the scales and the coarse erect (but sparse), bristly hairs occur elsewhere.

Legs with the apex of the femora, the apex of the posterior tibiae and all the tarsi obscure blackish-brown.

♂, ♀ Length of body : 9-11 mm., of proboscis : 4.7-6 mm.; breadth (with wings expanded) : 19-22 mm.

This species exhibits such wide variations that Mr. Paramonow (1926, *loc. cit.*, pp. 111-112) and Dr. Engel (1937, *loc. cit.*, pp. 220-222) recognize three distinct varieties, in addition to the type (*var. Eversmanni* Param., *var. karelini* Param. and *var. Pallasi* Param.). I have not been able to see specimens of the type species nor of any of the above named varieties but from their descriptions they do not agree in all respects with the specimens from Egypt. These, however exhibit two very distinct « colour forms », in fact so different in colour and design, that before a detailed comparative examination, they appear to belong to two distinct species; moreover they occur in two very different and distant localities in Egypt. Consequently I have designated them by two names occupying the varietal rank. The dark form, *elbuyensis nov. var.* originates from Gebel Elba (extreme South-Eastern frontier of Egypt and the Sudan) where my assistant Mohamed Tewfik Effendi and myself have captured sixteen males and an equal number of females between the end of January and beginning of February, 1929-1933. *Montana nov. var.* however occurs so far only in the mountainous region of South Sinai near the Monastery of St. Catherine, in Wadi El-Legaâ at an altitude of 1750-1800 metres. My second assistant Shafik Effendi and myself have collected it there during the summers of 1940 to 1943, between the end of June to the end of August, but curiously enough out of a series of 29 specimens only one is a female.

The type-species is said to occur in South Europe and South Asia and Paramonow's three varieties are all from South Russia. Dr. Engel records a female specimen from Kerdasah (3.III.1926) from my collection but I do not agree with his determination of this specimen which, although in very bad condition, undoubtedly refers to Macquart's old species *numida*.

Bombylius cinerascens MIKAN

Mikan (1796), Monogr. Bombyl. Bohem., 50, 10, tab. III, f. 10; Meigen (1804), Klassif., I, 185, 15 et (1820), Syst. Beschreib., II, 212, 38; Curtis (1836), Brit. Entomol., VIII, 614, 8; Duncan (1838), Mag. Zool. and Bot., II, 210; Walker (1849), List Dipt. Brit. Mus.,

II, 282; Loew (1855), *Neue Beitr.*, III, 27, 49; Schiner (1862), *Faun. Austr.*, I, 62; Jeann. (1867), *Berl. Entom. Zeitschr.*, XI, 74, 46; Palm. (1869), *Verh. zool.-bot. Ges. Wien*, 413, 9; Kowarz (1873), *Verh. zool.-bot. Ges. Wien*, 4; Becker (1887), *Berl. Entom. Zeitschr.*, XXXI, 107, 32 et (1902), *Mitteil. Zool. Mus. Berl.*, II, 14, 9; Strobl (1893), *Mitteil. Naturwiss. Ver. Steiermark*, XXIX, 1892, 39 et (1910), XLVI, 55; E. and L. Coucke (1894), *Annal. Soc. Entom. Belg.*, XXXVIII, 287; Thalharm. (1899), *Faun. Regn. Hung. Dipt.*, 28, 54; Villeneuve (1903), *Bull. Soc. Entom. France*, 1903, 238; 17; Verrall (1909), *Brit. Flies*, 493; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 163, 5; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 112, 171; Engel (1937), in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 204, 45, 222; Austen (1937), *Bombyl. of Palestine*, 17, 22, 7.

SYNONYMY :

favillacens Meig. (1820), *Syst. Beschreib.*, II, 211, 37; Macq. (1826), *Rec. Soc. Sci. Agric. Lille*, 1826, 372, 8; Walker (1849), *List Dipt. Brit. Mus.*, II, 280.

floralis Meig. (1820), *Syst. Beschreib.*, II, 206, 28; Villeneuve (1903), *Bull. Soc. Entom. France*, 1903, 238, 24.

? *minor* Meig. (non L.) (1820), *Syst. Beschreib.*, II, 201, 20; Zeller (1840), *Isis*, 1840, I, 16, 3.

DIAGNOSIS :

A small to medium sized tawny to ochraceous tawny species. Wings without any conspicuous markings though often feebly tinged brown or infuscated more so about the upper half of the basal two-thirds but without defined boundary. Eyes in the male approximated but separated by a line which is as broad as the anterior ocellus. Head without any long black post-ocular fringe, and the face with numerous erect black hairs forming a broad « frame » over the whitish or yellowish beard. Thorax and abdomen without design but with numerous long black hairs. Legs orange except the femora almost entirely brownish-black.

DESCRIPTION :

♂ : *Head* (Pl. XXXI, figs. 459-461) covered with a pure white to pale yellowish-white tomentum; frons small, triangular, bare in the median furrow, and clothed on the sides with dense, short, adpressed, shining white to pale yellowish hairs which are quite tufted on the sides of the base of the antennae, and where the hairs on the outer border (of the tufts) are often of a bright golden yellow colour; face clothed on the middle part with long pubescence which is dense, erect yellowish or whitish yellow, the hairs

of which droop at the tip and which is surrounded on the upper and side margins by a broad but less dense band of equally long but more erect black hairs (forming the black « frame » of the beard) and this band contracts downwards and does not extend on to the lower part of the cheeks, where only the yellowish pubescence exists and even that in turn becomes very pale to whitish as usual on the jowls and back of the mouth; occiput bearing dense short coarse pale yellowish to almost white pubescence which includes no trace of long black hairs but which forms (when seen from in front) a distinct short cropped but very thick collar against the longer darker pubescence of the thorax; ocellar tubercle bearing a tuft of long (as long as the erect black hairs of the face), mixed black and pale yellowish or whitish hairs; eyes separated by a blackish-grey line which is as long as the length of the ocellar tubercle and quite as broad as the front ocellus; proboscis dull blackish and a little longer than twice the length of the head (including the antennae); palpi obscure blackish-brown with very short sparse erect dark brown hairs and often concealed beneath the dense hairs of the beard; antennae dull brownish-black, longer than the head; first segment clothed with long erect black hairs above, on the sides and beneath, and occasionally a few of these hairs may be pale yellowish; second segment with sparse, very short black and one or two yellowish hairs about the tip; third segment almost cylindrical, only a little narrower at the tip than elsewhere and not more than one and a half times the length of the two first segments together.

Thorax dull black but obscured by very dense, long (on the front part and sides) mixed tawny and black pubescence; seen from above the ground colour is not much obscured on the dorsum though the conspicuous light buckthorn brown and black pubescence obscures all the front part and sides, while the long radiating hairs of the fans between the wings and the scutellum are light cream buff or pale yellowish; seen from the side the pubescence appears all cream buff on the sides and dark brownish about the dorsum owing to the erect tawny hairs being mixed with numerous erect longer black hairs; chaetotactic bristles absent but some of the longer black hairs on the postalar calli (also mixed with numerous long cream buff hairs) are bristly; pleurae with sparse, soft, rather short pale greyish pubescence on the lower parts but which becomes longer, more dense and mixed pale yellow and black above, and on the upper margin of the mesopleura the hairs are very long, tufted and include a conspicuous tuft of black hairs directed upwards, which is well apparent when viewed from above; metapleura with a well developed fan of dense long, outstanding light cream buff hairs, among which are intermingled three to six black hairs; scutellum with pubescence similar to, but longer than (particularly the very long black

hairs), and merging into that on the disc of the thorax and without any short scaly hairs.

Wings cinnamon brown to deep mummy brown all across the base and upper half to the apex of Sc cell, and this colour sloping outwards and downwards but without a defined boundary and leaving usually the rest of the wing hyaline with a greyish-brown tinge; r-m cross-vein placed on the middle of 1st M_2 cell; thick black basal part of the costa with numerous adpressed short golden yellow hairs above and with short but strong black bristles or spines in front close to the base; alula more or less deeply infuscated with a minute pale brown fringe on the outer part and with a long yellow to pale yellow fringe all along the margin near the base; squamae small, mummy brown with a thick blackish margin which possesses a longish yellow to pale yellowish-white fringe; halteres mummy brown.

Legs with all the coxae, trochanters and femora except the apex of the latter blackish, and with the apex of the femora and all the tibiae and tarsi dull orange, but the latter obscured as usual by dense minute black pubescence; coxae with long (but not dense) pale yellow to whitish pubescence and the femora with sparse erect but soft and long mixed black and whitish pubescence; femora with more or less dense, very short, closely adpressed yellowish-white or white scales; hind femora with an anteroventral row of about six stiff black bristles and with a few smaller anterior and dorsal black bristles about the tip; tibiae also bearing white scales and all their small bristles and spurs as well as those on the tarsi are black; claws black but reddish-brown about the base; pulvilli small ovate, more or less pale brownish-yellow.

Abdomen deep dull black but densely covered with long ochraceous tawny to pale cream buff pubescence which is paler at the side margins and tip and where it is longer than on the dorsum but not so neatly shorn as usual, and without an undercoat of short scaly hairs although a few shorter sub-erect but soft yellow hairs usually occur about the centre of the abdomen; isolated long black hairs occur about the hind margins of the second, third, fourth and fifth segments, especially towards the sides, and these black hairs are much longer, stronger and more rigid than the thin yellow hairs; venter light drab with the lower borders of the sternites obscure cream buff and with long black hairs arranged in an almost even prehind-marginal row on the sternites, intermixed with very sparse and much shorter, rather adpressed pale yellowish-pubescence; third to fifth sternites each, with four narrow elongate oval shining black pits (arranged in two admedian pairs); genitalia (Pl. XXXI, fig. 462) blackish-brown except about the apex yellowish-red or orange and surrounded by pale yellowish to whitish pubescence but the sparse hairs on the genitalia proper are very short and mixed reddish-yellow and whitish.

♀ : Extremely like the male and the wings are not more hyaline.

Frons (Pl. XXXI, figs. 463 and 464) at the vertex only a little less than one third the width of the head, as the eyes are separated by a distance which is a little less than three times the breadth of the ocellar tubercle; frons with long erect mixed black and yellowish hairs on the sides (forming almost two admedian tufts), with shorter erect pale yellowish hairs in the centre but on the lower margin with dense, short, adpressed pale golden yellow to whitish pubescence; pubescence on face and on first segment of antennae almost exactly as in the male. Ovipositor brownish black with mixed long black and shorter white pubescence and with dense yellowish-orange hairs overlapping over the opening and hiding the spines (if present) beneath.

♂, ♀ Length of body : 5.3-9.0 mm., of proboscis : 3.0-4.5 mm.; breadth (with wings expanded) : 6.5-17.2 mm.

B. cinerascens is one of our commonest spring *Bombylius* and has a wide distribution in Egypt. I have collected it in the Mariut district, from Abd el-Kader to Hammam in March as well as in numerous localities in the Eastern Desert namely from Wadi el-Gabow near Helwan, Wadi Hoff, W. Morrah, W. Garawi, W. Um-Elek, W. Zohleiga and W. Wirag (North Galala). My dates extend from the beginning of February (2.II.) to the end of March (27.III.).

This species has a very wide geographical distribution, being known from Europe, Asia minor and other parts of North Africa. Mr. Paramonow gives a wide period (IV - VI, VIII) for the occurrence of this fly « on the wing » in localities in Russia with which he is acquainted.

***Bombylius fimbriatus* MEIG.**

Meigen (1820), Syst. Beschreib., II, 191, 6 et (1830), VI, 325; Grimm. (1847), Bull. Soc. Imp. Nat. Moscou, XX, 1, 217, 3; Walker (1849), List Dipt. Brit. Mus., II, 282; Loew (1855), Neue Beitr., III, 15, 25; Schiner (1862), Faun. Austr., I, 61; Jaennicke (1867), Berliner Entom. Zeitschr., XI, 73, 38; Kowarz (1873), Verh. zool.-bot. Ges. Wien, 1873, 4; Becker (1887), Berliner Entom. Zeitschr., XXXI, 106, 31 et (1910), Deutsch. Entom. Zeitschr., 1910, 637, 20 et (1913), Annu. Mus. Zool. Acad. Imp. St. Petersb., XVIII, 83, 65 et (1926), Entom. Mitteil., XV, No. 1, 37, 1; Engel (1887), Entom. Nachr., XIII, 47; Thallhamm. (1899), Faun. Regn. Hung. Dipt., 28, 46; Villeneuve (1903), Bull. Soc. Entom. France, 1903, 238, 11; Strobl (1908), Verh. zool.-bot. Ges. Wien, LIX, 148; Verrall (1909), Brit. Flies, 499; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 93, 116, 172; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl.,

202, 29, 30, 227, 228, f. 108; Austen (1937), Bombyl. of Palestine, 16, 22, 6 (*B. debilis* Lw.).

SYNONYMY :

dimidiatus Wied. *apud* Meig. (1820), Syst. Beschreib., II, 192, 8. Gimm. (1847), Bull. Soc. Imp. Nat. Moscou, XX, 1, 217, 4; Walker (1849), List Dipt. Brit. Mus., II, 282.

var. debilis Lw. (1855), Neue Beitr., III, 16, 27; Engel (1937), *loc. cit.*, 228; Austen (1937), *loc. cit.*, 22, 6.

var. expletus Lw. (1855), Neue Beitr., III, 15, 25; Jaennicke (1867), Berlin. Entom. Zeitschr., XI, 73; Paramonow (1926), *loc. cit.*, 117, 173; Engel (1937), *loc. cit.*, 228.

var. ventralis Lw. (1855), Neue Beitr., III, 15, 26; Röder (1884), Wien. Entom. Zeitg., III, 40; Paramonow (1926), *loc. cit.*, 161, 182; Engel (1937), *loc. cit.*, 228.

DIAGNOSIS :

A medium sized to large pale yellowish-grey fly whose very dense and furry pubescence usually shows (more often in the female) an undercoat of short, adpressed, yellowish-white hairs mainly concentrated in a narrow mid-dorsal line on the lower half of the thorax and on the basal half or more of the abdomen, where it forms a conspicuous pale median longitudinal line. Wings with an irregular but sharply defined nummy brown or sepia coloured fore margin extending from base to distal extremity of cell R_1 , with a deep indentation before its end or the brown marking may fade away at some distance before the apex of cell R_1 and a small isolated brown spot then occurring in cell R_3 and touching R_{2+3} vein. Eyes approximated in the male but separated by a line which is narrower than the anterior ocellus and shorter than the length of the ocellar tubercle. Head with numerous long black hairs behind the eyes and the face with dense erect black hairs forming a broad frame over the whitish beard. Thorax and abdomen with numerous long black hairs. Legs dull orange with the coxae, trochanters and the basal two-thirds or more blackish-brown.

DESCRIPTION :

♂ : Head (Pl. XXXII, figs. 465 and 466) covered with a pale cream buff or light yellowish-grey tomentum; frons broad triangular, almost bare in the centre and clothed on the sides of the median furrow with thin short erect mixed pale yellowish-white and black hairs which are very short adpressed and yellow near the eye margins and which usually become more crowded, tufted, sub-erect and glistening whitish (often with a faint yellow tinge) on the lower border, on each side of the base of the antennae; face

clothed on the middle part with very tufted long white or very pale yellowish pubescence, the hairs of which droop at the tip as usual (forming the beard), and which is surrounded on the upper and side margins by a broad band of equally long but less dense and more erect black hairs (forming the black « frame » of the beard), and this band contracts downwards and does not extend on to the lower part of the cheeks where only the softer erect white pubescence occurs (as well as on the jowls and back, of the mouth); occiput bearing numerous though not very conspicuous long thin black hairs and a shorter (longer than in *cinerascens*) denser coarse dirty pale yellowish-white pubescence which rests like a collar on the similar but longer pubescence of the thorax; viewed from in front the radiating long black hairs behind the eyes are conspicuous (numerous though not dense), but do not quite extend to the upper eye angles; ocellar tubercle (vertex) blackish and bearing an exclusively black, or mixed pale yellowish-white and black tuft of long pubescence which is erect on the back part and directed forward on the front part; proboscis dull black and almost twice as long as the length of the head (including the antennae) or as long as from the front margin of the scutum to the tip of the scutellum; palpi very short, obscure brown with a few very short erect yellowish hairs and always hidden inside the very dense beard (hardly visible even from beneath); antennae black but the two basal segments are covered with a pale brownish-grey tomentum which makes them appear light drab grey; first segment bearing numerous very erect almost entirely black hairs (but perhaps with one or two yellowish hairs) and those of the underside intermingle with the pale hairs of the beard; second segment with minute erect black hairs scattered about the apex; third segment narrow, sub-conical to almost cylindrical or somewhat strap-shaped, slightly widest about its middle and almost twice as long as the two first segments together (including the style); style not very short.

Thorax of a velvety black ground colour obscured by very dense dirty yellowish-grey and some black (about the dorsum only) pubescence which gives it a light brownish-olive appearance; the pubescence, including the few or rather not very numerous black hairs, is all equal as if shorn; when seen from above the deep velvety black ground colour is visible but the front part and sides appear pale dirty greyish-yellow, and on the posterior half (or rather less) of the disc, usually occurs a narrow pale yellow to whitish middorsal line, formed by an undercoat of short, decumbent and crossed hairs (situated on both sides of the median line with the hairs on both sides directed inwards and crossing each other), and which extends down over the middle of the scutellum and often to the end of the abdomen (but sometimes on the basal half only); in addition there is a pale yellowish patch above each wing base and a larger, longer fan-like pale yellow patch

behind each wing base radiating down to the similarly coloured patch (fan) on the metapleura; when seen from the side, the pubescence appears much paler (of a dirty yellowish-white colour) except about the middle two-thirds of the disc and on the sides where the pale hairs are of two distinct shades of colour, being honey yellow about the base and getting paler towards the tip, where they are whitish; two pre-alar bristles, usually black but occasionally brownish-red; two or three long but weak postalar bristles, all black or one black and one or two reddish-brown; pleurae on the upper part with very dense, mixed pale yellowish-grey and dark brown, almost blackish to all dark rufous tawny pubescence, extending broadly from the front part to below the wing base and this is followed by a conspicuous longer tuft of almost pure white hairs (between the end of the dark band and the very long yellowish metapleural fan); on the lower part of the pleurae the pubescence is less dense, shorter and from whitish to pale yellowish-brown; scutellar pubescence similar to, and merged into that of the posterior half of the thorax with the median longitudinal line (formed by the undercoat of crossed hairs described above) and with numerous long upturned black bristly hairs about the margin.

Wings hyaline with an irregular but sharply defined mummy brown to light sepia coloured fore margin extending usually from the base (and including the alula) to the distal extremity of cell R_1 and, either with a deep indentation before its end or the brown marking may fade away at some distance before the apex of cell R_1 and a more or less small isolated brown spot may occur near the apex of cell R_3 and touching vein R_{2+3} ; r-m cross-vein placed well before the middle, often on the basal third of 1st M_2 cell; the stout black basal part of the costa bearing numerous short, adpressed pale yellow bristly hairs above, which are longer and softer close to the base, and short black bristles in front; alula well developed, with a minute dark brown fringe except near the basal part where the hairs of the fringe are long, dense, pale yellow and intermingle with the fringe of the squamae; alar squamae deep mummy brown or blackish-brown with a thick darker margin and with a dense long fringe which may form one of the pale yellowish tufts visible behind the base of the wing; halteres very difficult to trace in the long dense pubescence, yellowish-brown on the stem, but the knob dark blackish-brown.

Legs dull orange, but the coxae, trochanters and the basal two-thirds or three-fourths of the femora blackish; tarsi darkened (owing to dense minute black hairs) soon after the basal segment and becoming more or less deeply obscured blackish on about the last three segments; coxae with long dense soft mixed whitish to pale dirty yellowish-brown and some dark brown or blackish pubescence; all the femora with long but very sparse blackish

pubescence beneath but not extending to the apex, and with shorter greyish pubescence on the basal half above, and in addition all the femora and tibiae are covered with very short closely adpressed white scales except on the ventral side of the posterior femora where the scales are usually yellowish; posterior femora anteroventrally with a row of about ten strong black bristles extending almost to the base and posteroventrally with a row of about four or five much smaller and weaker black bristles towards the middle and with a few small anterior and dorsal bristles about the tip; all the tibiae with rows of small moderately equal black spicules and spurs; tarsi with numerous tiny black bristles which become dense on the soles; claws black but more or less extensively reddish-yellow to reddish-brown about the base; pulvilli elongate ovate, shorter than the claws, dirty yellowish-white.

Abdomen of a deep velvety black ground colour obscured by very long dense pubescence which is mainly dirty pale brownish-yellow about the base and dorsum but paler all about the sides and apex (where it is usually whitish) and with numerous isolated longer black hairs scattered about the lower third of all the segments; the hairs forming the main pale pubescence are (like those on the thorax) of two distinct shades of colour (best seen from the side, but also very distinctly noticeable from above), being honey yellow on the basal half and whitish towards the tip; in addition, on the centre of the abdomen (usually on the basal third to half only but sometimes on all the abdomen) there is a narrow pale longitudinal line or stripe which is formed by an undercoat of short decumbent and crossed whitish to honey yellow hairs, and which is, or appears to be an extension of the narrow pale mid-dorsal line present on the lower part of the thorax (if at all present) and on the scutellum; pubescence of the abdomen considerably longer than, but not so neatly shorn as, that on the thorax; venter grey with long but not dense, pubescence which is dirty whitish at the base and sides and shorter, pure white about the centre and with some (not at all numerous) longer erect black hairs about the lower borders of the second to fourth or fifth sternites; hypopygium (Pl. XXXII, fig. 467) obscure reddish-brown with longish stiff reddish hairs.

♀ : Very much like the male but the narrow whitish or pale yellowish longitudinal line or stripe on the dorsum (formed by short decumbent and crossed pale hairs) is usually much more conspicuous and always extends from the middle of the disc of the thorax all the way down to the tip of the abdomen.

Head (Pl. XXXII, figs. 468 and 469) : Frons at the vertex almost one third the width of the head as the eyes are separated by a distance which is quite three times the breadth of the ocellar tubercle; frons with long

erect but not at all dense hairs on the sides of the upper half (or rather more) and all across the lower half, but the former are usually all black or mixed, black and a few whitish or yellowish, and the hairs on the lower half are generally all pale yellowish about the centre and whitish, shorter, much less erect on the sides of the lower border (on the sides of the base of the antennae) although on the extreme outer sides they often assume a pale golden yellow tinge; in addition, the upper half of the frons which is almost bare on rather less than the middle third bears a rather dense undercoat of very short, decumbent pale yellowish to deep golden yellow scaly pubescence; pubescence on face as in the male but the erect black hairs on the first segment of the antennae are somewhat shorter and rather less numerous. The pubescence on the thorax when seen from in front is sometimes much paler all about the sides and on the front margin (whitish), except in the centre where all, or most of the hairs are blackish forming a rounded spot, and behind this spot are two broad yellowish-brown stripes forming a somewhat V-shaped marking on the dorsum. Ovipositor entirely concealed in the dense pubescence.

♂, ♀ Length of body : 8-12 mm., of proboscis : 4.2-6.5 mm.; breadth (with wings expanded) : 18-23.5 mm.

This species appears to vary considerably in Egyptian specimens and is very closely allied to *B. major* L. Owing to its wide geographical distribution the described varieties are undoubtedly local forms. *B. basilinea* Lw., on which Verrall (1909, *loc. cit.*, p. 499), in discussing the close relationship of *B. major* L. with *B. fimbriatus* Meig. writes : « It (*B. major*) has some very close European allies, but *B. fimbriatus* and its nearest allies have the dark outer spot in the first submarginal cell (R_3 cell) quite isolated, while *B. basilinea* from Sicily is still doubtfully distinct, and *B. consanguineus* is accepted as only a variety » is in all probabilities, an other local form of *B. fimbriatus*. In support of this opinion I possess the specimens of *B. fimbriatus* from Mariut, identified by the late Professor Bezzi and bearing the label in his own hand writing : « *B. basilinea* Lw. ♂ ♀ ». I possess one female specimen from Wadi Raml (Mersa Matruh) in which the general pubescence is more deeply yellow and the irregular pale brown marking on the upper half of the wings is not sharply defined, fading away at a considerable distance from the tip of cell R_1 and without a trace of an isolated brown spot in cell R_3 .

This species is quite common in the early spring in two very different localities in Egypt. I have captured it at Abu Rawash, Abu Zaabal, Gebel El-Megadlah, Kafr Hakim, Kerdasah and also in the Mariut District from Amria to Hammam as well as at Mersa Matruh. My dates extend from 14-II. to 20.III.

B. fimbriatus, or its numerous varieties have been recorded from other countries in North Africa, from Palestine and Syria (*B. fimbriatus-debilis*), Sicily, Corsica and Sardinia, from Western Asia, Asia Minor and from Central and South Europe.

***Bombylius flavipes* WIED.**

Wiedeman. (1828), Aussereurop. zweifl. Ins., I, 568., 54; Loew (1855), Neue Beitr., III, 31, 59; Becker (1902), *Mitteil. Zool. Mus. Berlin*, II, 14, 7 et (1913), *Annu. Mus. Zool. Acad. Sciences St. Petersb.*, XVIII, 83, 68 et (1915), *Annal. Mus. Nat. Hung.*, XIII, 325, 94; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 163, 7; Paramonow (1926), *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 96, 1117, 173; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 208, 70, 229.

DIAGNOSIS :

A rather small to medium sized *Bombylius*, at once distinguished from all the other species by the dense furry pubescence of the entire body being of a bright empire to mustard yellow colour, with the dorsum of the thorax showing three longitudinal lines formed by an undercoat of very short, adpressed empire yellow hairs and by the pale reddish-yellow legs which possess only the coxae, trochanters and two or three apical segments of the tarsi blackish.

DESCRIPTION :

♂ : *Head* (Pl. XXXII, figs. 472 and 473) black but obscured all over by dense primuline yellow or mustard yellow pubescence except for the black hairs on the upper part and sides of the face forming the « frame » of the beard; this bright yellow pubescence on the frons is mostly very short, adpressed on the upper part but longer and sub-erect or depressed below, particularly on the sides of the lower border but there are also some erect yellow hairs all about the centre: on the face the pubescence composing the beard is not very long nor very dense but with the tips of the hairs drooping as usual and the more erect black hairs of the « frame » are even much less dense and the « frame » or band contracts downwards and does not extend on the lower half of the cheeks where only the shorter, sparser and paler yellow pubescence exists (as well as on the lower part of the head): eyes very approximated (almost touching) but separated by an extremely narrow line which is about one fourth the breadth of the anterior ocellus and rather shorter than the length of the ocellar tubercle; this latter is brownish to dark greyish-black and bears a tuft or long hairs which may all be yellow or usually, the erect hairs on the back part are yellow and the forwardly directed ones on the front part black; occiput without any black hairs and with dense

short mustard yellow pubescence which rests like a collar on the similar but much longer pubescence of the thorax; proboscis dull black and only a little longer than the head (including the antennae); palpi black with some long erect yellow hairs ventrally; antennae black; first segment with long erect pubescence which is usually all yellow above, on the outer sides and beneath but often a few of the hairs on the sides are black and, as a rule the pubescence on the dorsal side is shorter than that occurring ventrally; second segment with sparse, very short sub-erect pale yellowish hairs; third segment narrow sub-conical, and about one and a half times the length of the two first segments together; style not very short, basal segment black and the apical segment reddish-brown.

Thorax of a deep velvety brownish-black ground colour obscured (on the front part and sides) by very dense erect bright mustard yellow or primuline yellow pubescence without any black hairs which are all equal as if shorn, but on the middle two-thirds (and lower part) of the disc where the erect pubescence is much less dense and does not obscure the ground colour, there are three fairly distinct longitudinal stripes formed by very short, decumbent bright golden yellow hairs; of these three pale stripes the two admedian are the broadest, the middle stripe being usually very narrow above, gradually broadening downwards until it merges with the side stripes on the lower part of the disc, but sometimes this middle stripe is obscurely defined, only on the lower half of the disc and occasionally it may be quite absent and all the middle space between the two admedian stripes bearing a sparse undercoat of hairs similar to those forming the longitudinal stripes; two short, weak pre-alar and two to four weak postalar bristles, yellow or reddish-yellow; pleurae greyish-black with a feeble brownish tinge and with all the pubescence which is much denser and longer (but by no means very long) on the upper parts primuline yellow, and a little shorter, softer and quite sparse (and a little paler) on all the lower parts; the long tuft forming the fan of the metapleura golden yellow, very long and conspicuous from above (more dense but otherwise similar to the tuft beneath the postalar calli); scutellar pubescence similar to, and merged into that of the posterior half of the disc of the thorax, with numerous long upturned yellow bristly hairs about the margin, and with a fairly dense undercoat of very short decumbent golden yellow hairs which are directed laterally and which show a strong tendency to be more concentrated or more dense in the centre, where they often form a weak but distinct middorsal longitudinal paler stripe or crest.

Wings either hyaline with a pale brownish-yellow tinge about the base and the Sc cell or light brownish with the basal half and most of the fore border cinnamon brown but always with the darker colour very gradually merging into the hyaline area; r-m cross-vein variable in position, being

sometimes placed well before, and often on the middle of 1st M_2 cell which is usually rather broad; the stout basal part of the costa bearing above, dense short adpressed golden yellow bristly hairs which are a little longer and less bristly close to the base, and the very short black bristles in front are almost entirely concealed by the golden yellow pubescence; alula well developed, more or less darkly coloured brownish with a minute dark brown fringe except near the basal part where the fringe is much longer and pale yellow (but not very long or very tufted); squamae more or less pale cinnamon brown with a thick blackish margin and with a dense, longish yellow fringe; halteres reddish-yellow or yellowish-brown on the stem and with the knob usually paler.

Legs pale reddish-yellow to dull light orange with the coxae, trochanters and the three apical segments of the tarsi blackish; coxae with longish and not very dense yellow pubescence; all the femora with longish, fairly dense yellow pubescence on the basal third or half which rapidly diminishes in length towards the apex and with fairly dense, very short, closely adpressed pale yellow scales; posterior femora anteroventrally with a row of about eight strong black bristles not extending to the base and posteroventrally with a row of six to ten minute black bristles and with a few anterior and dorsal black bristles about the tip; all the tibiae (in well preserved unrubbed specimens) with very short, closely adpressed pale yellow scales and with rows of small, moderately equal black spicules and spurs; tarsi with tiny black bristles which become very numerous on the soles, as usual; claws black but extensively reddish-yellow about the base (almost all the basal half); pulvilli ovate, dirty whitish-brown.

Abdomen of a dull black ground colour obscured by long dense mustard yellow or primuline yellow pubescence all over, without any trace of black hairs anywhere but which is usually distinctly paler all about the apex as well as on the sides of the apical third, and with an undercoat of similarly coloured but more or less sparse, very short decumbent hairs which show through the longer pubescence on the dorsum and which are directed laterally (with their tips pointing inwardly); this very short pubescence is frequently somewhat concentrated (and paler) in the centre of the apex where it forms, like on the scutellum, a paler median longitudinal stripe or crest (owing to the lateral position of the hairs which, close to the mid-dorsal line, must necessarily cross each other); the longer erect pubescence on the abdomen is only a little longer than, but not so neatly shorn as, that on the thorax, venter greyish-black but with a distinct brownish tinge (rather deeper brownish than the pleurae) and usually with the lower margins of the sternites only about the centre, antimony yellow; the pubescence on the venter is very sparse, all yellow and consists of some long erect hairs and of much

shorter decumbent hairs, which may occasionally also be more numerous on the centre and form a paler median longitudinal stripe; hypopygium (Pl. XXXII, fig. 474) more or less pale reddish-yellow with very short, sparse erect reddish hairs but surrounded by much longer, similarly coloured, stiff hairs.

♀: Very similar to the male, but the colour of the general pubescence on the body is of a deeper, darker yellow (more brownish), the longitudinal stripes on the dorsum of the thorax as described in the male, more conspicuous, the abdomen with numerous longer erect yellow bristly hairs on the lower borders of the segments (absent in the male) and the wings are much more extensively hyaline, usually yellow to brownish-yellow only at the base and on the Sc cell.

Head (Pl. XXXIII, figs. 475 and 476); frons at the vertex distinctly less than one fourth the breadth of the head as the distance separating the eyes is hardly twice the breadth of the ocellar tubercle; frons bearing dense; short adpressed glistening deep golden yellow scaly pubescence which becomes longer and less adpressed (sub-erect) below, on the sides of the base of the antennae and which is occasionally absent on a narrow longitudinal line, or on a narrow oval spot in the centre, and with numerous long erect rather coarse black hairs on the sides of the upper half; pubescence on the face not unlike that in the male but less dense, somewhat shorter, coarser and the yellow colour of the beard is distinctly darker; first segment of antennae with a few more black hairs than in the male.

Ovipositor, when exerted, with yellow spines and short erect yellow hairs.

♂, ♀ Length of body : 6.8-10 mm., of proboscis : 2.6-3.6 mm.; breadth (with wings expanded) : 14.5-19.5 mm.

B. flavipes exhibits, in the large series at my disposal, wide variations in the deepness of the yellow colour of the body, as well as in the extent of the black hairs on the head, and I strongly suspect Walker's species *pallidulus* (Walker, 1849, List. Dipt. Brit. Mus., II, 285) to be identical with this species. Becker (1902, *Mitteil. Zool. Mus. Berlin*, II, 16, 11) records the capture of one male specimen in the Fayoum Oasis of *B. pallidulus* Walk. which in my opinion refers to *flavipes* Wied.

This very pretty, apparently endemic species is one of our commonest *Bombylii* and has a wider distribution in Egypt than any other species. I have collected it in many Provinces in the Delta, in and around Cairo (Shoubra, Giza, Marg, etc.) as well as in Upper Egypt as far south as Aswan. I have also captured it all along the Mediterranean Coast from Alexandria to Mersa Matruh, in Northern Sinai (Ein Gedeirat, Kosseyema) and in the Fayoum Province. My dates extend from February 20th to the end of April.

The only other country from which *B. flavipes* has been recorded so far is Tunis, El-Ariana (by Becker) and I am surprised it has not as yet been found in Palestine.

***Bombylius medius* LINN.**

Linnaeus (1758), Syst. Nat., Edit. X, 606, 2 et (1761), Faun. Suec., Edit. Alt., 471, 1919, et (1767), Syst. Nat., Edit. XII, II, 1009, 2; Fabricius (1775), Syst. entom., 802, 2 et (1781), Spec. Ins., II, 473, 3, et (1787), Mant. Ins., II, 365, 3 et (1794), Entom. Syst., IV, 408, 3, et (1805), Syst. Antl., 129, 5; Sulzer (1776), Abgek. Gesch. d. Ins., 225; Tab. XXVIII, f. 23; O.F. Müller (1776), Zool. Dan. Prodr., 182, 2152; Harris (1782), Expos. Engl. Ins., Tab. XI, VII, f. 1 (*sinè nom. et descr.*); Olivier (1789), Encycl. Méthod., IV, 326, 3; Rossi (1790), Faun. Etr., II, 336, 1588, et (1807), Faun. Etr., Edit. II, 506, 1588; Gmelin (1790), Syst. Nat., V, 2902, 2; Donovan (1796), Nat. Hist. Brit. Ins., V, 5, Tab. CXLVI, f. 1; Latreille (1804), Hist. Nat. Crust. et Ins., XIV, 299, 2, Tab. CIX, f. 5, et (1804), Dict. Hist. Nat. Deterv., XXIV, 190, 522, et (1809), Gen. Crust. et Ins., IV, 314; Fallen (1815), Dipt. Suec., Bombyl., 10, 2; Lam. (1816), Hist. Nat. anim. sans vert., III, 407, 1; Duncan (1838), Mag. Zool. and Bot., II, 207; Zett. (1842), Dipt. Scand., I, 189, 2, et (1849), Dipt. Scand., VIII, 2978, 2; Gimm. (1846), Bull. Soc. Imp. Nat. Moscou, XX, I, 219, 7; Walker (1849), List. Dipt. Brit. Mus., II, 279 et (1851), Ins. Brit., I, 82, 2; Loew (1855), Neue Beitr., III, 12, 15, et (1857), Verh. zool.-bot. Ver. Wien, VII, 80, 21, et (1862), Berl. Entom. Zeitschr., 71, 34; Schiner (1862), Faun. Austr., Dipt., I, 60, 7, et (1868), Nov. Reise, Dipt., 136, 61; Jaennicke (1867), Berl. Entom. Zeitschr., XI, 73, 36; Palma. (1869), Verh. zool.-bot. Ges. Wien, 413, 3; Kowarz (1873), Verh. Zool.-bot. Ges. Wien, 4, et (1883), Contrib. Faun. Com. Zempleniens. Hung., 8; Westwood (1876), Trans. Ent. Soc. Lond., 497-499; Neuh. (1886), Dipt. Marchica, 53, 2; Engel (1887), Entom. Nachricht., XIII, 46; Bezzi (1892), Boll. Soc. Ent. Ital., XXIV, 103, 449 et (1922), Mem. Soc. Entom. Ital., I, 149, 26; Strobl (1893), Mitteil. Naturwiss. Ver. Steiermark, XXIX, 1892, 38 et (1898), Wien. Entom. Zeitg., XVII, 300, 6; Thalh. (1899), Faun. Regn. Hung., Dipt., 28, 43; Villeneuve (1903), Bull. Soc. Entom. France, 237, 9, et 238, 12; Wahlgr. (1907), Entom. Tidskr., XXVIII, 185, 1; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 82, 129, 176 et (1931), Trav. Mus. Zool. Kieff., No. 11, 72; Engel (1937), in Lindner: Flieg. Pal. Region, 25, Bombyl., 201, 202, 241, fig. 111.

SYNONYMY :

concolor Mikn. (1796), Monogr. Bombyl. Bohem., 30, 2, Tab. II, fig. 2; Meigen (1804), Klassif., I, 178, 2, *et* (1820), Syst. Beschreib., II, 197, 14; Brullé (1832), Expéd. Scient. Morée, III, 1, 301, 649; Macquart (1834), Suite à Buffon, I, 378, 7, *et* (1849), Explor. Scient. Algérie, Zool., III, 447, 94; Gimm. (1847), Bull. Soc. Imp. Moscou, XX, 2, 156, 17; Walker (1849), List Dipt. Brit. Mus., II, 279; Scholz (1851), Zeitschr. f. Entom. Breslau, V. No. 17, 43; Villeneuve (1903), Bull. Soc. Entom. France, 237, 9.

discolor Meig. (*nec* Mikn.) (1804), Klassif., 178, 1, Tab. X, fig. 8 *et* (1838), Syst. Beschreib., VII, 66, 55; Macquart (1834), Suite à Buffon, I, 378, 8.

major Sam. (1819), Entom. Compend., 295, Tab. IX, fig. 10; Wood. (1821), Illustr. Linn. Gen. Ins., II, 106, Tab. LXXI.

punctatus Deg. (1776), Mém. p. serv. l'hist. d. Ins., VI, 269, 2, Tab. XV, f. 12.

Varieties or Subspecies :

var. albomicans Lw. (1855), Neue Beitr., III, 12, 18; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 99, 168; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 242.

var. dalmatinus Strobl (1893), Wien. Entom. Zeitg., XII, 33 (*sin. nom.*) *et* (1902), Glasnik Zem. Mus. Bosn. Herzegov., XIV, 466, *et* (1904), Wissensch. Mitteil. Bosn. u. Herzegov., XIV, 466, *et* (1904), Wissensch. Mitteil. Bosn. u. Herzegov., IX, 525; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 130, 176; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 242.

var. pallipes Lw. (1855), Neue Beitr., III, 13, 19; Becker (1906), Zeitschr. f. Syst. Hymen. u. Dipt., VI, 98, 29, *et* (1913), Annu. Mus. Zool. Acad. Sciences St. Petersburg, XVIII, 83, 63, *et* (1915), Annal. Mus. Nat. Hung., XIII, 325, 90; Bezzi (1922), Mém. Soc. Entom. Ital., I, 149, 25, *et* (1924), Boll. Mus. Zool. e Anat. Univ. Torino, XXXIX, No. 18, 7, 38. Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 141, 178; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 242.

Synonymy : *confrater* Lw. (1855), Neue Beitr., III, 13, 20; ? *intermedius* Walk. (1849), List Dipt. Brit. Mus., II, 279.

var. pictipennis Lw. (1855), Neue Beitr., III, 12, 17; Röder (1884), Wiener Entom. Zeitg., III, 41, 1; Strobl (1898), Wiener Entom. Zeitg., XVII, 300, 6, *et* (1906), R. Soc. Espan. Hist. Nat. III, 284 (6), *et* (1908), Ver. Zool.-Bot. Ges. Wien, LIX, 148; Becker (1906), Zeitschr. f. Syst. Hymen. u. Dipt., VI, 97, 26, *et* (1913), Annu. Mus. Zool. Acad. Sciences

St. Petersb., XVIII, 83, 62, *et* (1915), *Annal Mus. Nat. Hung.*, XIII, 325, 89; *Bezzi* (1924), *Boll. Mus. Zool. e Anat. Univ. Torino*, XXXIX, No. 18, 7, 39, *et* (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 163, 2; *Paramonow* (1926), *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 130, 176; *Engel* (1937) in *Lindner*: *Flieg. Pal. Region*, 25, *Bombyl.*, 243.

Synonymy : *poecilopterus* Bez. (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 163, 2.

var. punctipennis Lw. (1855), *Neue Beitr.*, III, 12, 16; *Paramonow* (1926), *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 146, 180; *Engel* (1937) in *Lindner*: *Flieg. Pal. Region*, 25, *Bombyl.*, 243.

var. seminiger Beck. (1906), *Zeitschr. f. Syst. Hymen. u. Dipt.*, VI, 97, 27; *Paramonow* (1926); *Mém. Acad. Sciences Ukraine*, T. III, livr. 5, 149, 180; *Engel* (1937) in *Lindner*: *Flieg. Pal. Region*, 25, *Bombyl.*, 243.

DIAGNOSIS :

A medium sized to very large species (the largest of our *Bombylius*) with tawny, pale yellow or whitish pubescence all around the abdomen, at once distinguished by the wings which bear numerous brown dots and which are more or less deeply coloured brown or blackish-brown about the base and anterior half or fore border.

DESCRIPTION :

♂ : *Head* (Pl. XXXIII, figs. 477 and 478) of black ground colour and covered with a pale brownish or brownish-grey tomentum which makes it appear similarly coloured; frons broad, triangular, with a rather deep median furrow and clothed with a mixed pubescence (except about the centre, immediately above and between the base of the antennae) consisting of rather dense sub-erect glittering yellow to pale yellowish pubescence which becomes a little more dense and depressed below, on the sides of the base of the antennae and of less numerous long erect black hairs (not quite so long as those on the ocellar tubercle or those on the first antennal segment); face clothed on the middle part with long dense pubescence (the beard) which varies from reddish-brown to cream buff or pale yellow which droops at the tips of the hairs and with or without some black hairs intermixed close around, while all the hairs on the upper part and on the sides (the side cheeks) are black and more erect (forming the thick « frame » of the beard); the lower part of this « frame », which is contracted downwards, as usual, ends as a rule on the lower angles of the cheeks (but it may terminate a little higher up) and all the lower part of the head is clothed with dense long erect but softer pale yellow to yellowish-white pubescence; eyes very approximated (almost touching) but separated by a very short and narrow line which is much

shorter and narrower than the front ocellus; ocellar tubercle brownish-black or blackish, elevated, and bearing a tuft of long exclusively black hairs, those on the back part erect and those on the front part directed forward as usual; occiput not much puffed out, clothed with dense short erect coarse pubescence varying in colour from tawny to pale greyish-yellow, in which occasionally (usually when the pubescence is tawny) are intermixed more or less numerous short black hairs, which rests as a sort of collar against, and somewhat merges into the similar dense pubescence of the thorax; proboscis black, more than twice the length of the head (including the antennae); palpi blackish, bearing minute black pubescence dorsally and long stiff blackish hairs beneath; antennae black, dull, but covered (particularly the two first segments) with a thin brownish or greyish dust; first segment bearing all over (except on the basal fourth) numerous but not very dense long straight black hairs which are directed forwards and outwards, many of which may occasionally be reddish-yellow at the tips, and often, in the paler form, in addition to the above mentioned black hairs there are some very short pale hairs scattered about and intermixed with the long ones; second segment with some minute stiff blackish or whitish hairs dorsally; third segment elongate sub-conical, gradually diminishing towards the tip, about one and a half times the length of the two first segments together and not quite bare, often bearing dorsally a few scattered minute dark brown or yellowish hairs; style moderate in length, with the basal segment quadrate to sub-conical, blackish rather narrower than the tip of the third antennal segment and the thinner rod-shaped apical segment reddish-brown and a little longer than the basal one.

Thorax with a dull brownish-black ground colour which is obscured by very dense tawny or yellow ochre pubescence; this pubescence besides being very dense is perfectly equal as if it had been shorn; when seen from above the ground colour shows somewhat through on the disc and causes a brownish-black appearance, while the sides are shimmering paler tawny and show a depressed whitish-yellow patch just above each wing base, and similar but paler, longer haired depressed patches beneath the postalar calli, above which are numerous long (but shorter than the pale hairs) black hairs mixed with a few tawny hairs; about half way between the wing base and the centre of the disc, among the tawny pubescence there is a tiny patch of erect black hairs followed behind by a few scattered similar hairs; seen from in front the pubescence is brownish-yellow or warm buff and in the former case (when brownish-yellow) with a small dark brown V-shaped marking in the middle of the front border (formed by reddish-brown or blackish hairs), but this marking, in the paler, warm buff coloured specimens is totally wanting; in addition to the small patches of black hairs mentioned

above (always seen from in front) there are usually also, all about the centre of the disc more or less numerous erect black hairs scattered among the tawny pubescence; chaetotactic bristles consisting of one or two short but rather strong reddish or reddish-brown pre-alars; pleurae with very dense long pubescence on the upper parts extending widely from the front part to the wing base but which varies considerably in colour; in the dark form almost all the hairs are very dark reddish-brown or blackish with a very few reddish-brown ones intermixed, or all the hairs of the front half are blackish and the posterior half (below the wing base) with the majority reddish-yellow and with some black hairs intermixed; in the pale form the pubescence on the upper half of the pleurae is uniformly mixed, pale reddish-yellow and black, the latter being rather less numerous than the pale hairs; on the lower parts of the pleurae the pubescence is much less dense, shorter and mostly blackish in the dark form and pale reddish-yellow in the pale form, and in both cases not dense enough as to obscure the brownish-black ground colour; likewise the conspicuous tuft of long hairs pointing backwards, on the metapleurae, in the dark form consist of black hairs beneath and of reddish-yellow hairs above (the tips of which are paler), and in the pale form the hairs of the tuft are brown on the ventral side and pale yellow above (with the tips whitish); scutellum with its pubescence similar to, and merged into that of the posterior part of the thorax and with more or less numerous long upturned black (occasionally with two or three reddish-brown) bristly hairs on and about the margin.

Wings pale brown to dark blackish-brown all across the base (including the alula), but the lower margin of this brown part sloping steadily though irregularly upwards from the end of the alula to a little beyond the middle of R_1 cell and leaving the rest of wing hyaline with numerous small brown spots, some of which (usually those occurring near the margin on the tips of the veins) may often be very pale, almost inexistant; these spots are fairly dark and well apparent in the dark form which possesses the brown basal part of the wing described above, blackish-brown or even brownish-black, and disposed as follows: six at the tips of the veins (counting the two veins at the apex of the 1st A cell as one) of which those at the tips of $R_2 + R_3$ and R_4 are the largest, one in R cell, on the base of the stem of the fork $R_4 + R_5$, one on the r-m cross-vein, one larger spot after this latter before the middle of the closed R_5 cell, two close to each other one on the base of R_4 and one near the base of R_5 on the tip of M_1 (at its junction with R_5), a twelfth on the veins closing the apex of 1st M_2 cell, a thirteenth on the base of the vein forming the distal half of the lower margin of the latter (cell), and a fourteenth on the cross-vein like Cu_1 vein; in the pale form these brown spots are usually much paler, particularly the ones near

the apex and lower border and sometimes the six spots on the tips of the veins are almost effaced; r-m cross-vein placed a little or well before the middle of 1st M_2 cell; the stout basal part of the costa bears numerous pale yellow or yellowish-white scales above and numerous short black bristles anteriorly with the tips turned outwards; alula large with a minute brown or brownish-yellow fringe which becomes much longer and glittering pale reddish-yellow or whitish along the basal edge; squamae not small, more or less dark blackish-brown with a broad black margin of which the long and dense fringe varies from deep orange (in the dark form) to pale yellow (in the pale form); halteres with a thin long brownish-yellow stem and a moderately large blackish-brown knob, but difficult to detect because so deeply imbedded in the dense long pubescence.

Legs orange to reddish-yellow, dull, but the coxae, trochanters, and most of the femora blackish, leaving the apical third of the front and middle and the apical half of the hind femora orange or yellow, though not very definitely so on the posterior pairs; extreme tip of all the femora with a dark brown or blackish spot in front and often the spot is present only on the posterior pair and in the pale form no such spot occur anywhere; the three apical segments of the tarsi blackish; coxae with long dense tangled clumps of hairs which may be almost all blackish on the middle and hind coxae and yellowish-brown on the front pair or all pale brownish-yellow on all the coxae; all the femora with long but not very dense black pubescence on approximately the basal half of the under side and the posterior pair with an anteroventral row of weak black bristles on the apical half, as well as a few shorter ones about the tip above and in front; in addition all the femora bear very short adpressed reddish-yellow or yellowish-white scales which also extend on the tibiae; all the tibiae with rows of small, moderately equal black spicules and little longer apical spurs; tarsi with numerous tiny black bristles which become very numerous on the soles; tarsi with some minute elongate glittering golden scaly hairs; claws black but brownish-red about the base; pulvilli elongate ovate, almost as long as the claws and dirty yellowish or dirty whitish.

Abdomen dull black, but obscured by very dense long pubescence which is usually brownish-yellow on the basal two-thirds but paler yellow on the rest, and with more or less numerous, only a little longer black hairs intermixed and apparently occurring on the lower borders of the segments; in addition, the apical half often shows a median longitudinal narrow whitish stripe which gradually broadens towards the tip and which, when the abdomen is seen from behind, distinctly show that this stripe is formed by an undercoat of shorter decumbent and crossed (being directed inwards on each side of the mid-dorsal line) white hairs and which shows through the longer

erect pubescence; in the pale forms the pubescence on the basal third of the disc is pale yellowish but brownish-yellow on the sides and on all the apical two-thirds it rapidly assumes a whitish colour which becomes pure white on the tip, but always with more or less numerous longer black hairs occurring on the lower borders of the segments and intermixed with the pale pubescence; in the last mentioned paler forms the short decumbent white hairs described above usually occur on the apex and do not extend beyond the two apical segments; venter, in the dark form with sparse long erect mainly black and some or a very few reddish-brown hairs and, in the pale form most of the pubescence (some long erect and some shorter decumbent) is pale brownish-yellow with a few long black hairs; in addition also, the blackish ground colour of the venter shows paler yellowish-brown hind borders to many of the sternites; hypopygium (Pl. XXXIII, fig. 479) reddish-yellow to blackish-brown with short erect reddish-yellow or reddish-brown sparse hairs.

♀ : Very similar to the male but the pubescence is shorter and coarser and the narrow whitish longitudinal line which in the male is only present in the dark form and then only extending on the apical half, is here more conspicuous, longer (extending from the middle or even a little above the middle of the second segment to the apex, where it is broader) and always apparent (in both the dark and pale forms).

Head (Pl. XXXIII, figs. 480 and 481), frons at the vertex almost one third the width of the head because the eyes are separated by a distance which is three times the breadth of the ocellar tubercle and covered with a tomentum which varies from brown to whitish and which consequently makes it appear dark ochraceous tawny to greyish-black; frons apparently bare about the middle but with some longish thin erect yellow hairs, and with short decumbent orange to pale yellow pubescence on the sides and across just below the ocellar tubercle, while all the upper part and the sides bears also long erect black by no means dense hairs (longer than the yellow hairs); the short pubescence becomes less depressed, a little longer and rather more dense on the sides of the lower part of the frons.

Thorax with the pubescence coarser, less even, owing to the black hairs being more numerous on the disc, and with the chaetotactic bristles more numerous; about four reddish-brown or reddish-yellow pre-alar and about four long postalar bristles, two or three of which are usually reddish-brown and one or two black. Scutellum with more numerous mixed reddish-brown and black, longer and coarser bristly hairs (almost true bristles) about the margin.

Wings as in the male.

Legs very much as in the male but the hind femora with the row of

anteroventral stiff black bristles more numerous (about ten) and extended more towards the base and the other bristles about the apical third also more numerous: tibiae with the rows of small black spicules rather more conspicuous.

Abdomen, in addition to the median whitish longitudinal line mentioned above, longer and more conspicuous than in the male, with the pubescence decidedly coarser, as on the lower margins of the segments there are many tawny or pale yellow coarse hairs intermixed with the long (a little longer than the latter) black bristly hairs which are more numerous on the apical segments: furthermore, even in the palest form, the pubescence all about the apical third or more of the abdomen never assumes an almost white colour as it frequently does in the male and, in such pale forms all the erect pubescence is of a uniform pale yellow colour all over. Ovipositor concealed by the dense long pubescence.

♂, ♀ Length of body : 8.5-14 mm., of proboscis : 4.5-7.5 mm.; breadth (with wings expanded) : 11.5-30 mm.

The wide geographical range of this species and its variability has resulted in its having been described under a number of synonyms: some of these have been retained by Engel and adopted as subspecies. I am not convinced of the validity even, of these varieties because, in the large series studied by me, and of which all the representatives originate from one locality in Egypt (Mariut district), most of the so-called varieties or subspecies are represented. It is for this reason that, in giving the detailed description of Linnaeus' original species, I have included the wide range of variation, particularly of the colour of the pubescence on the whole body. Mr. Paramonow (1931, *loc. cit.*, p. 72) who examined all the types in Berlin, is in agreement with my opinion because in connexion with *B. punctipennis* Lw. he says: « After studying the types of this species, as also a long series of the varieties or sub-species of *B. medius* L. (*punctipennis*, *pallipes*, etc.). I am convinced that, in the *B. medius* group, there are only two « good », distinct species: *medius* L. and *discolor* Mikn. ».

B. medius and its varieties is very common in the Mariut district, from Abd el-Kader to Hammam, between the middle of February to the end of March. It is a magnificent hoverer on the sandy patches which in that season are often covered with annuals in flower, in between the barley fields, and is then very difficult to catch, but when attracted by low growing flowers it is not difficult to secure.

This species is found in other countries of North Africa, Asia Minor, Siberia and throughout Europe with the exception of the extreme north.

Bombylius minusculus NOV. SPEC.**DIAGNOSIS :**

A small species (by far the smallest *Bombylius* known), at once distinguished by the long but unusually sparse yellowish-white pubescence all over the thorax and abdomen with no traces of black hairs, by the head of the male, in which the frons is covered by dense long argenteous scales and the eyes touching for a distance which is almost twice as long as the length of the ocellar tubercle, by the pale yellow legs with the apical tarsal segments only blackish, and by the entirely hyaline wings.

DESCRIPTION :

♂ : *Head* (Pl. XXXIII, figs. 482 and 483) black but covered with dense white tomentum except on the lower half of the very narrow cheeks where the mouth margin is broadly yellowish; frons entirely covered by dense, depressed glittering silvery white elongate scales which on the sides possess a slight yellow tinge and which are longer, less depressed below (on the sides), where they reach forward well in front of the base of the antennae (quite half the length of the erect hairs of the face on which they rest); face clothed with a sparse beard composed mostly of erect black hairs (about as long as the length of the two first segments of the antennae together) with the tips of the hairs drooping, as usual, and only a few of the hairs about the centre of the upper margin of the mouth are pale yellowish-red; lower part of cheeks and upper part of jowls bare and the rest of the under side of the head with very sparse, short, soft whitish pubescence; occiput bearing very short adpressed pure white scales and with a short pale yellowish-grey or dirty white collar of coarse erect hairs and without any black hairs; ocellar tubercle blackish-grey with a tuft of long mostly black hairs and two or three of the forwardly directed ones on the front part yellowish; eyes distinctly meeting for a distance which is almost twice the length of the ocellar tubercle; proboscis dull black, about one and a half times the length of the head (including the antennae) and unusually stout; palpi apparently absent (!); antennae blackish; first segment clothed with erect, not dense pubescence which, on the ventral surface consist of black hairs (almost as long as those of the beard) but much shorter dorsally and mostly whitish; second segment with a few minute whitish erect hairs dorsally; third segment strap-shaped, elongate conical and only a little longer than the two first segments together (less than one and a half times their combined lengths); style very small, minute, basal segment blackish and the rod-shaped apical segment pale yellowish.

Thorax of a dull black ground colour hardly obscured by the long but not at all dense, uniformly pale yellowish-grey or dirty whitish-gre pu-

bescence, which is hardly longer but paler (whitish) on the sides; when viewed from above some much shorter, sub-erect yellowish hairs are seen scattered among the sparse long pubescence on the dorsum; no chaetotactic bristles present but the longer (longest) hairs on the postalar calli are only somewhat coarse; pleurae grey, clothed with fairly dense soft pubescence which is all whitish and fairly long on all the upper parts but shorter, less outstanding and less dense below; metapleural fan long with the hairs pointing backwards as usual, whitish below and pale yellowish-white dorsally; scutellum dull black with sparse long erect pale yellowish-grey pubescence which merges into that of the thorax and with the hairs on the margin longer and somewhat bristly.

Wings (Pl. XXXIII, fig. 484) entirely hyaline (even at the extreme base), with a brownish-yellow venation; vein R_1 less undulated or less curved than usual; R_3 cell with one (left wing) or two (right wing) cross-veins in its narrow basal half; r-m cross-vein placed on the proximal third of 1st M_2 cell and the latter is rather large and broad; alula well developed with a thin dark brown margin and a short brownish-yellow fringe except near the basal part where the hairs are much longer and whitish; stout basal part of the costa bearing above some minute, adpressed pale yellowish scaly hairs and minute black bristles; squamae pale whitish-yellow with a rather thick yellow margin and a long pale yellowish fringe which is somewhat tangled with the longer whitish fan of the metapleura; halteres pale yellowish-brown on the stem and with the rather large knob cream colour.

Legs very pale whitish-yellow except the coxae obscure brownish and the three apical tarsal segments blackish; coxae with long, not dense whitish pubescence and similar but shorter and softer pubescence on the basal half of the anterior, and basal third of the posterior femora, ventrally; femora and tibiae with minute, adpressed white scales and the posterior femora with three small black bristles ventrally on the apical half; tibiae and tarsi with sparse rows of tiny black bristles which become more numerous on the soles of the latter; claws black except about the base reddish-yellow; pulvilli about half the length of the claws and pale yellowish-white.

Abdomen dull brownish-black hardly obscured by long but not at all dense erect dirty white pubescence which becomes much longer and of a pure white colour on the sides of the apical half and without any black or dark hairs anywhere; in addition, there are a few short decumbent dirty yellowish hairs, scattered about the centre (the lower part of the second and all the third segments) and the three apical segments are covered with a dense undercoat of very short, closely adpressed pale yellowish-white scales; venter whitish-grey, clothed with a fairly dense dirty whitish pubescence

consisting of numerous short, decumbent scaly hairs and some sparser long hairs; hypopygium (Pl. XXXIII, fig. 485) yellow with very sparse short pale reddish hairs.

♀ : Unknown.

♂ Length of body : 4 mm., of proboscis 1.8 mm.; breadth (with wings expanded) : 9.2 mm.

The only male specimen of this species, the type, was obtained by my assistant Shafik Mostapha Effendi from Ein Gedeirat (Kosseiyema) on July 15th 1939.

***Bombylius modestus* LW.**

Loew (1873), Beschreib. europ. Dipt., III, 192, 116; Becker (1902), Mitteil. Zool. Mus. Berlin, II, 14, 8; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 164, 9; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 134, 178; Engel (1937), in Lindner : Flieg. Pal. Region, 25, Bombyl., 247.

DIAGNOSIS :

A small *Bombylius* with more or less deep chamois coloured pubescence of the body but which is paler (cream buff) on the sides and pure white on the apex of the abdomen (which, in the male is covered with dense closely adpressed snow white scales), distinguished by the short tufted adpressed silvery white scales which in the male cover most of the frons but in the female only present below, on each side of the base of the antennae, by the entirely hyaline wings in which the r-m cross-vein is placed on the proximal third of the 1st M_2 cell and by the pale yellow legs in which only the coxae are obscure brownish-black and the four apical tarsal segments as well as the apical third or less of the metatarsi blackish.

DESCRIPTION :

♀ : Head (Pl. XXXIII, figs. 486-488) black but covered with a pale brownish tomentum (except on the small upper angle of the triangular frons which makes it appear blackish-brown or blackish-grey; frons clothed (except on the upper angle) with short, adpressed elongate scales which are usually glittering golden yellow in the centre and argenteous on the sides and these silvery white scales are longer, sub-erect below, where they reach forward well in front of the base of the antennae; face with the colour of the pubescence (not at all long and not dense) of the beard (with the tips of the hairs, drooping) usually yellow ochre or reddish-yellow all about the centre and « framed » above and on the sides by numerous more erect black hairs, but this is very variable as the black hairs may be very reduced in number and bordering the yellow hairs above and on the sides, or most

of the beard may consist of black hairs with only a few yellowish-red hairs on the margin of the mouth; lower part of side-cheeks bare and the pubescence on all the underside of the head is short, sparse soft and whitish or pale yellowish; occiput with short, erect, coarse pale brownish-yellow or dark chamois pubescence (when seen from in front) forming a rather dense deep collar which rests on the longer and paler yellow pubescence of the thorax; ocellar tubercle obscure brownish-black with a tuft of longish, erect hairs which are usually all black but sometimes those on the back portion are all yellow; eyes meeting for a distance which is distinctly longer than the length of the ocellar tubercle (at least one and a half times); proboscis dull black and about twice the length of the head (including the antennae); palpi yellowish- or brownish-red with sparse minute brownish pubescence and a few longer yellow hairs ventrally; antennae black but the two first segments greyish-black owing to their being covered with a thin whitish-dust; first segment with some erect but not at all dense and not long stiff hairs which are usually pale yellow or whitish all over but sometimes a few of the hairs on the ventral side are black; second segment practically bare, only with two or three minute dark hairs above, near the apex; third segment elongate conical, very gradually tapering from near the base to the apex and about one and a half times the length of the two first segments together; style well developed with the small conical first joint blackish and the yellowish rod-shaped apical joint apparently two segmented.

Thorax of a dull blackish ground colour which usually possesses a brownish tinge (owing to thin sparse brown dust), obscured by dense, more or less deep chamois coloured pubescence, which is usually paler (yellowish-white) on the sides and much less dense about the centre of the disc (where it hardly obscures the ground colour); this pubescence besides being very dense above and on the sides is perfectly equal as if it had been shorn but when seen from above, the ground colour shows through all about the centre of the disc and causes a brownish-black appearance, where a sparse undercoat of short decumbent yellow hairs is usually easily detected; no trace of black hairs anywhere; two short yellow pre-alar bristles, often difficult to detect owing to usually being not longer than, and imbedded in, the dense pale yellow pubescence; pleurae light gull grey with a uniform pale yellowish-white pubescence, which is long and tufted on all the upper parts (including the tuft of long dense backwardly turned hairs on the metanotum) and which becomes gradually shorter, less dense and paler towards the centre so that all the lower parts are clothed with sparse short white pubescence; scutellum with its pubescence similar to, and merged into that of the thorax and with the undercoat of short adpressed yellow hairs usually more evident owing to the hairs being more numerous than on the dorsum

of the thorax and possessing a horizontal direction (consequently those present in the mid-dorsal line crossing each other); scutellum with a few of the longer marginal pale yellow hairs decidedly bristly.

Wings entirely hyaline with the veins pale yellow about the base and rapidly getting darker towards the tip, where they are blackish-brown; r-m cross-vein placed on the proximal third or even fourth of the 1st M_2 cell and this latter cell broad but not short; the stout basal part of the costa bears numerous pale yellow or yellowish-white scales above and some minute black bristles anteriorly; alula well developed, with a short brownish-yellow or brown fringe which becomes much longer and pale yellow or whitish along the basal edge; squamae rather large, yellow or pale brownish-yellow, with a thick yellow (hardly darker) margin and a dense long pale yellowish fringe; halteres with the stem brownish-yellow (more or less dark) and a paler cream to cream buff knob.

Legs more or less pale reddish-yellow or yellow with the basal half (approximately) of the coxae, the extreme tip of the trochanters (ventrally), and the tarsi, except the basal half or two-thirds of the metatarsi, blackish; the posterior legs are usually of a darker reddish-yellow colour and their metatarsi are somewhat more uniformly obscured, than the anterior pairs; coxae with long but not dense whitish pubescence and similar but shorter pubescence occurs ventrally on the basal third of the middle and hind femora and on the basal half or two-thirds of the front femora; posterior femora with an anteroventral row of about six short but not weak black bristles, one or two very short bristles in the position of the posteroventral row and a very few shorter ones about the tip above and in front; femora and tibiae covered with very short, adpressed white scales and the latter with rows of moderately equal black spicules and a little longer apical spurs; tarsi with numerous tiny black bristles which become more numerous on the soles as usual and with some minute elongate glittering yellow scaly hairs; claws black except about the base, more or less extensively reddish-brown; pulvilli yellowish-white, fairly well developed.

Abdomen dull black obscured by long dense chamois pubescence which is paler (cream buff) on the sides and longer, almost pure white towards the apex, as this portion, or more correctly the apical fourth or so (the fifth to seventh or eighth segments), is covered only with short depressed glittering silvery white scales which are often so dense and so closely adpressed that they give the impression of having been glued and pressed down on the background; in addition to the long erect pubescence the dorsum also bears a fairly dense undercoat of short decumbent chamois hairs, which are placed horizontally and with their tips directed inwards (like those on the scutellum); there is no trace of black hairs anywhere; venter

greyish-black with the lower margin of most of the sternites usually broadly cream buff and with a pale yellowish or yellowish-white pubescence which consists of elongate erect hairs (fairly dense on the sides and very sparse about the centre) and of numerous closely adpressed short scales; hypopygium (Pl. XXXIII, fig. 489) yellow except about the base obscure brown, with sparse short pale yellowish hairs.

♀ : Very much like the male but often of a paler yellow colour, with the pubescence decidedly coarser as the abdomen possesses numerous long bristly hairs on the posterior borders of the segments, in addition to some similar ones on the postalar calli and on the margin of the scutellum, and the two basal segments of the antennae are almost always pale reddish-yellow or dark reddish-brown.

Head (Pl. XXXIII, figs. 490-492) : frons at the vertex one fourth the width of the head because the eyes are separated by a distance which is hardly twice the breadth of the ocellar tubercle and covered with a tomentum which varies from yellow to white; the pubescence on the frons consists of dense short adpressed ochre yellow to pale yellowish scales on almost all the upper two-thirds, with a few erect but not long yellowish hairs interspersed on the sides of the upper part only, and of more dense depressed glittering silvery white scales below, on each side of the base of the antennae which form two conspicuous tufts, but most of the middle portion of the lower third (except the very centre, between and above the base of the antennae) bearing yellow adpressed scales, similar to but sparser than those covering the upper two-thirds; pubescence on face (beard) as in the male but somewhat shorter and rather less dense; occiput often with short white scales all about the sides and which are yellowish above (hence less evident) and with a similar to, but coarser pubescence than in the male; first segment of antennae more or less pale reddish-yellow or reddish-brown and with a similar pubescence to, but shorter than in the male; second segment more or less dark brownish-yellow, almost always darker than the first segment, especially about the tip; third segment as in the male, black.

Thorax with the erect pubescence, coarser, paler (usually, but by no means always), and shorter than in the male but the undercoat of short adpressed yellow hairs more evident, because rather dense (when not rubbed off); the pre-alar bristles are about four, at least two of which longer and stronger, and the bristly hairs on the postalar calli are longer, coarser and usually include one or two true reddish-brown bristles; pleurae with the pubescence on all the upper parts correspondingly shorter than in the male but on the lower parts short, adpressed and scaly.

Wings and legs as in the male but the black bristles forming the anteroventral row on the hind femora are about four.

Abdomen, as stated previously, with a much coarser pubescence as the lower borders of the segments bear numerous very long yellow bristly hairs; in addition the undercoat of short adpressed yellow hairs is more dense, becoming scaly towards the apex where it often entirely covers the apical third or fourth, in place of the silvery white scales; sometimes the three apical segments are all covered with adpressed silvery white scales as in the male but often also the scales are yellow all about the middle third and silvery white on both sides (of segments four to seven); venter with the sparse, longer erect yellowish hairs coarser and the short adpressed cream buff scales usually more dense than in the male; ovipositor reddish-yellow or reddish-brown apically with long erect reddish-yellow hairs and short yellow or white scales on the sides.

♂, ♀ Length of body : 5-7 mm., of proboscis : 1.8-4.2 mm.; breadth (with wings expanded) : 10-15.5 mm.

This species is fairly common in Egypt where it has a wider distribution than any other species of *Bombylius*. I have captured it in the Delta, at Alexandria and all along the Western Mediterranean Coast to Mersa Matruh, in all the neighbourhood of Cairo (Ezbet El-Nakhl, Abu Zaabal, Mansouriah, Kerdasah, Mahmoudiah, El-Magadla, El-Mallaha, Helwan, Wadi El-Wirag, Wadi Garawi, Wadi Sesaba, Wadi Rishrash), in the East, at Ismailia and in Northern Sinai (Ein Gedeirat, Kosseyema). My assistant Mohamed Tewfik Effendi has obtained it from Wadi Assiuti in April. I have also collected it in Wadi Edeib (Gebel Elba). My records extend from the end of February (Gebel Elba, 26.II.7.III.) to July 5th (Nouzha, Alexandria). *B. modestus* is subject to very wide variation. I have one male specimen from Mersa Matruh which has all the pubescence of the head snow white except the tuft of erect hairs on the ocellar tubercle pale yellowish; in the same specimen the pubescence on the thorax and abdomen is of a pale yellowish-grey colour and whitish all about the sides and apex of the abdomen and all the legs are obscure dark reddish-brown. Four other males from Wadi Edeib (Gebel Elba) are typical in all respects except that the erect pubescence on the entire head (frons, face, ocellar tubercle) except the occiput is entirely black and the silvery white decumbent scales on the sides of the lower part of the frons are reduced (when seen from in front) to two small glistening argenteous spots, one on each side of the base of the antennae. I possess also three males (one from Mazghouna, 24.III.'26, one from Wadi Edeib, Gebel Elba, I.'33 and the third also from W. Edeib, 26.II.7.III.'38) and two females (one from Mansouriah, 17.III.'28 and the other from W. Edeib, 26.II.7.III.'38) in which the wings are distinctly brownish and much darker (blackish-brown) all about the base and the upper half almost to the tip of R_1 cell and in one of the three males only and in

both females with three small darker (blackish) spots in this dark part of the wing, one on the base of the fork R_2+3 and R_4+R_5 , one on the r-m cross-vein and one on the m-cu cross-vein. One of these males (from Mazghouna) is of a deep reddish-brown coloured pubescence and all the three males possess a few longer black hairs on the sides of the thorax, on the margin of the scutellum and on the sides of the lower border of the first four abdominal segments; the short adpressed pubescence on the frons of the three males is uniformly chamois or pale yellowish-grey and in one of the three males only (from Gebel Elba) with two or three sub-erect longer black hairs on each side, above and the erect pubescence on the first antennal segment is mixed, with the black hairs more numerous than the yellowish ones. Of the two above mentioned females, the one from Mansouriah (17.III.'28) has a much darker (rich deep brownish-red) colour than the other and the short sub-erect scaly pubescence on the frons is uniformly glittering brownish-red or brownish-orange (with no white or paler scales anywhere) and the two tufts of longish erect hairs, one on each side of the upper part of the frons are black; in the second female (from Gebel Elba, 26.II.-7.III.'38) the short scales covering the frons are yellow ochre and distinctly paler (light chamois) below, on each side of the base of the antennae and the erect hairs on each side of the upper part of the frons are mixed, some yellow and some black; the two first segments of the antennae in both female specimens are obscure brownish-yellow or brownish-red and the erect pubescence on the basal segment is reddish-yellow or yellow without any black hairs; second segment with minute blackish pubescence about the tip. Thorax and scutellum in the Gebel Elba specimen without any black hairs or bristly hairs but in the specimen from Mansouriah two of the longer bristly hairs on the postalar calli and several of the long upturned marginal (and pre-marginal) scutellar ones are black; corresponding, on the abdomen, in the former specimen some of the longer erect bristly hairs on the lower borders of the fourth to sixth segments are black but in the latter specimen most or almost all the bristly hairs (on the lower borders of the second to fifth segments) are black and in both specimens the dense yellow ochre or reddish-yellow undercoat of short adpressed scaly hairs and scales covers the entire dorsum and apex, without a trace of argenteous scales anywhere.

B. modestus was first described by Loew from specimens originating from Greece and according to Engel it is known from South and East Europe. It is surprising that it has not as yet been recorded from Palestine and from other countries in North Africa, unless it has been designated by synonymis.

Bombylius Moussayensis NOV. SPEC.**DIAGNOSIS :**

A small to rather large fly with pale brownish-chartreuse yellow or greyish-lime green pubescence which is whitish about the apex of the abdomen, with hyaline wings in which only the base and the Sc cell are brownish-yellow or brown and the r-m cross-vein placed a little before the basal third of the 1st M_2 cell, and with pale yellow or brownish-yellow legs except the basal two-thirds of the coxae, the tip of the trochanters and most of the tarsi blackish.

DESCRIPTION :

♂ : *Head* (Pl. XXXIV, figs. 493 and 494) black but covered with a thin yellow dust; frons (except on the small upper angle which is also devoid of dust) bearing a mixed pubescence which consists of some sparse adpressed glittering strontian yellow hairs on each side of a narrow, bare mid-dorsal line, which are a little more numerous, sub-erect and often paler on the sides of the lower border (on each side of the base of the antennae) and of a few erect longish black hairs on each side of the middle portion (approximately); face clothed with fairly dense long erect pubescence which is usually almost all black on all the anterior part and sides (but sometimes most of the hairs of the front part (including the upper and lower parts) are strontian or wax yellow with only about four black ones and which shows a sparse undercoat of very short decumbent strontian yellow hairs but all the hairs along the side margins of the mouth which droop at the tips are wax yellow; the lower fourth or so of the side-cheeks and the posterior margin of the mouth are bare and reddish-yellow; all the pubescence on all the rest of the lower side of the head is soft, erect but not long and whitish; occiput not puffed out, clothed with dense short, erect, coarse, pale greyish-lime green to pale yellowish-grey pubescence, without any black hairs, which rests as a sort of collar and somewhat merges into the similar dense pubescence of the thorax; ocellar tubercle greyish-black, rather elevated and bearing a tuft of longish, erect, exclusively black hairs, those on the front part directed forward, as usual; eyes meeting for a distance as long as, or a little longer than the ocellar tubercle; proboscis dull black and almost three times the length of the head (including the antennae); palpi blackish with minute dark hairs above and on the sides but with a longitudinal row of long stiff yellow hairs ventrally; antennae entirely black; first segment with long erect exclusively black hairs which intermingle above with the similar but shorter hairs of the frons and below with the equally long ones of the face; second cup-shaped segment with some minute or very short mixed yellow and black hairs about the apex; third

segment elongate, sub-conical, gradually diminishing towards the tip but with its thickest part about the middle, and approximately one and a quarter to one and a half times the length of the two first segments together and not quite bare, often bearing dorsally a very few scattered minute yellowish hairs; style well developed, with the quadrate to sub-conical basal segment black and the short cylindrical apical segment also black but bearing a short conical yellow apical rod.

Thorax with a dull black ground colour, somewhat obscured by fairly dense brownish-chartreuse yellow or pale greyish-lime green or pale yellowish-grey long erect pubescence and showing an undercoat of less dense, very short, decumbent glittering strontian yellow hairs; there is no trace of black hairs anywhere and the long pubescence on the sides of the disc, particularly the longer hairs on the postalar calli are paler; the chaetotactic bristles consist of one or two pale yellow short prealars which are difficult to detect owing to being imbedded in the dense and quite as long pubescence of the margins, and of a few long light chartreuse yellow bristly hairs on the postalar calli surrounded by similarly coloured long hairs; pleurae grey, almost bare on the lower parts but with dense long pubescence on all the upper parts (including the long dense matapleural fan) which varies from uniformly pale brownish-chartreuse yellow to yellowish-white; scutellum with its long erect but not dense pubescence similar to, and merged into that of the dorsum of the thorax, showing a similar undercoat of short strontian yellow hairs but these instead of being directed backwards like on the thoracic dorsum, are horizontal in position, with their tips directed inwards, and with several long upturned chartreuse yellow bristly hairs on the margin.

Wings hyaline except the base (including the alula) and the Sc cell more or less deeply tinged yellowish-brown or brownish-yellow; r-m cross-vein placed on the basal fourth or third of 1st M_2 cell and the latter is narrow and elongate; the stout basal part of the costa bears dense glittering pale golden yellow elongate scaly hairs above and some very short black bristles anteriorly; alula large, with a minute blackish fringe (but not exclusively so, as a few yellow hairs are usually present) which becomes much longer and yellow or pale yellow near the basal edge; squamae brown with a thick blackish-brown margin and a long chartreuse yellow fringe; halteres pale reddish-yellow to brownish-yellow with the knob, as a rule paler than the stalk and not easy to detect owing to being concealed beneath the long dense pubescence of the postalar calli.

Legs yellow or reddish-yellow except the coxae, the ventral side of the trochanters, the anterior side of the apical half or third of the middle femora, the apex of the hind femora, the antero-ventral side of the front tibiae, all the hind tarsal segments and the rest of the tarsi except the basal third or

half (approximately) of the front and middle tarsi blackish; coxae with long fairly dense pale yellow or yellowish hairs; all the femora with sparse longish soft whitish hairs on about the basal third but posteriorly and on the middle pair these hairs extending usually beyond the middle (but gradually diminishing in length); femora and tibiae covered with short, closely adpressed white or whitish-yellow elongate scales but which, on the anterior half of the middle femora are blackish; hind femora with an anteroventral row of about eight rather strong black bristles on the apical two-thirds, a posteroventral row of about six very short black bristles on the apical half and a few short black ones about the tip above and in front; all the tibiae with rows of small moderately equal black spicules and little longer apical spurs; tarsi with numerous tiny black bristles which become very numerous on the soles, and with microscopic black pubescence; claws with the apical half black and the rest reddish-yellow or reddish-brown, or entirely black; pulvilli about two-thirds the length of the claws and pale yellowish or very pale greyish-brown.

Abdomen dull blackish but obscured by dense long pale brownish-lime green or very pale yellowish-grey pubescence which is much paler (whitish or pure white) about the apex, without a trace of black hairs, and with a sparse, even, undercoat of very short decumbent or sub-erect glittering golden yellow hairs, like those on the scutellum, bent transversely but which on the apex (the last three segments, approximately) become more dense, crowded and much paler (whitish); venter grey, like the pleurae, with the lower border of the sternites usually pale reddish-brown and with a pale yellow or yellowish-white vestiture composed of very sparse long thin hairs and more numerous (fairly dense) short, coarse, decumbent hairs or scaly hairs; hypopygium (Pl. XXXIV, fig. 495) small, blackish-brown about the base but reddish-yellow apically and bearing sparse short erect reddish-yellow pubescence.

♀ : Extremely like the male but the brown tinge about the base of the wings and on the Sc cell is much paler (much less evident) and the general pubescence only a little shorter and a little coarser.

Head (Pl. XXXIV, figs. 496 and 497) brownish-black; frons at the vertex less than one fourth the width of the head because the eyes are separated by a distance which is not more than twice the breadth of the ocellar tubercle and clothed with dense very short decumbent glittering golden orange scales which become a little longer, sub-erect and paler (golden yellow or pale yellow) below, on each side of the base of the antennae and with long erect not dense and almost all black hairs scattered over the two outer thirds and ending below, above the base of the antennae, just above the two golden yellow tufts of short sub-erect scales; a few of these

erect hairs on the sides of the frons are yellowish and the pubescence on the face is very much as in the male but shorter; first antennal segment with much shorter and sparser erect mixed pubescence, yellowish and black.

Thorax and legs as in the male but the posterior femora with the anteroventral row only of about four black bristles and the posteroventral row obsolete.

Abdomen with the long hairs of the erect pubescence and the very short decumbent hairs of the undercoat hardly paler about the apex. Ovipositor blackish except about the apex yellow or reddish-yellow and with short erect yellowish hairs.

♂, ♀ Length of body : 5.6-11 mm., of proboscis : 3.4-6.8 mm; breadth (with wings expanded) : 14.2-21.5 mm.

Thirteen males and five females including the types have been collected by my assistant Shafik Moustafa Effendi and myself between the middle and end of April 1938-40 in Wadi el-Legaā in South Sinai at an altitude of 1700-1750 metres. The characteristic pale greenish-yellow colour of this species reminds very much that of *Anastoechus*.

***Bombylius numida* MACQ.**

Macquart (1849) in Lucas : Explor. scient. de l'Algérie, Zool., III, 450, 104, Tab. IV, f. 3; Loew (1860), Dipt.-Faun. Südaf., I, 177, 6 (*Dischistus*); Becker (1902), Mitteil. Zool. Mus. Berlin, II, 15, 10; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 163, 4; Paramonow (1926), Mém. Acad. Sciences Ukraine, T. III, livr. 5, 139, 178; Engel (1937) in Lindner : Flieg. Pal. Region, 25, Bombyl., 252.

DIAGNOSIS :

A medium sized or fairly large somewhat coffee brown *Bombylius* distinguished by the Isabella or olive lake colour of the pubescence on the dorsum of the thorax which includes tufts of black hairs forming two pairs of small, dark admedian spots on the upper half of the disc and which is whitish or pure white all about the anterior and side margins, by the eyes which in the male are approximated for a distance which is shorter than the length of the ocellar tubercle and much narrower than the breadth of the anterior ocellus, and in the female by the very numerous long erect black bristly hairs on the posterior borders of the abdominal segments which, in the male, are absent or consist, at the most of a few (three to ten) scattered ones only about the apex (the long pubescence being pale brownish-yellow and the base and on the rest of the abdomen all whitish and pure white apically).

DESCRIPTION :

♂ : *Head* (Pl. XXXIV, figs. 498 and 499) black but covered with a dense silvery white or yellowish-white tomentum; frons with a few scattered short sub-erect white hairs about the centre and with even fewer erect but only a little longer white hairs two or three of which may be black, but on the sides the decumbent pure white hairs are scaly, tufted and glittering silvery-white on each side of the base of the antennae; face clothed on the middle part with long dense whitish pubescence but the hairs are usually yellowish about the bases and drooping at the tips as usual, and all the hairs on the upper part and on the sides are black and more erect, forming the « frame » of the beard; the lower part of this « frame » which is contracted downwards, as usual, is whitish again on the lower part of the cheeks and all the lower part of the head is clothed with long, fairly dense and softer white pubescence; occiput rather puffed out (but not much), bearing numerous very short, adpressed silvery white scales all about the sides and behind the eye margins and clothed with dense short erect whitish or yellowish pubescence which rests like a collar against the somewhat darker and much longer pubescence of the thorax; ocellar tubercle elevated, brownish or greyish-black and bearing a tuft of long exclusively black hairs, those on the back part erect and those on the front part directed forward as usual; eyes not touching but approximated for only a short distance which is shorter than the length of the ocellar tubercle and about half the breadth of the anterior ocellus; proboscis dull black and a little longer than twice the length of the head (including the antennae); palpi blackish-brown bearing minute blackish pubescence dorsally and a few long stiff brownish-yellow hairs beneath; antennae black but the first two segments covered with a thin greyish-brown dust; first segment clothed with fairly dense long mixed black and yellowish or pale brownish hairs, or usually most of the hairs on the dorsal and ventral sides are yellowish-white and those on the outer side black, but this pubescence is never exclusively black or all yellowish; second cup-shaped segment with some minute erect hairs about the apex dorsally; third segment elongate, narrow sub-conical and almost twice as long as the two first segments together; style well developed, black, with the rather long apical sensory rod pale brownish- or reddish-yellow.

Thorax dull blackish-brown (owing to being covered with a brown dust) and obscured by a dense long, erect light Isabella or olive lake pubescence among which are interspersed more or less numerous erect black hairs; this pubescence, besides being very dense is perfectly equal as if it had been shorn, but when seen from above the ground colour shows through on the disc and causes a characteristic coffee brown appearance, while the anterior

border and sides are shimmering pale yellowish or whitish; in addition to the erect black hairs mentioned above (interspersed among the Isabella pubescence) there are usually two pairs of small rounded or elongate oval admedian blackish spots on the upper half of the disc, formed by tufts of almost exclusively black hairs, the anterior pair of spots being more approximated to each other and the second pair, a short distance below the former, are more wider apart and situated just behind the transverse suture: the chaetotactic bristles consist of two or three rather long and strong brownish-yellow pre-alars and three to eight postalars which are long (two or three very long) but weaker, and which are usually mixed, some brownish-yellow and two or three black; usually also the apex of the hairs forming the depressed pubescence (and the pale bristles and bristly hairs) on the postalar calli is shimmering whitish like the very long tuft of the metapleural fan behind the wing base; pleurae brownish-grey with very long tufted pubescence on all the upper parts which is light chamois except posteriorly below the wing base very pale yellowish or whitish, and with much shorter, much less dense whitish pubescence on all the lower parts; the very long tufted erect hairs (with their tips directed backwards) of the metapleura are all honey yellow on the lower half or more, but shimmering whitish above; scutellum with its pubescence similar to and merged into that of the thorax and with numerous long upturned pale brownish-yellow (rarely with two or three black) bristly hairs all about the margin and whose tips are usually also much paler (whitish).

Wings varying considerably from entirely hyaline with only the extreme base and the Sc cell very pale brownish-yellow, to deep snuff brown all across the base, including the alula and the basal third, to beyond the middle of R_1 cell, and this colour becoming gradually paler outwards and downwards and leaving usually the rest of the wing hyaline but sometimes with a feeble but distinct brownish tinge; r-m cross-vein varying also much in position as it may be placed beyond, but quite as frequently on, and sometimes before the middle of 1st M_2 cell and the latter is usually rather short and broad; thick black basal part of the costa with dense adpressed short pale yellowish-scaly hairs above and with numerous short black bristles in front; alula pale brownish or deep snuff brown with a minute brown fringe on the outer part and a much longer yellowish fringe near the base; squamae blackish-brown or brownish-black with a thick black margin and a long yellowish or whitish fringe; halteres reddish-brown with the knob usually paler.

Legs reddish-yellow or orange with all the coxae, trochanters, the femora, the apical half or extreme apex of the metatarsi and the rest of the tarsal segments blackish, but the apex of the femora are often obscure reddish-

brown beneath; coxae with long but not very dense whitish pubescence; front and middle femora with similar but sparser and softer pubescence posteroventrally which become shorter towards, and extend almost to the apex; hind femora with similar long whitish sparse pubescence ventrally, but hardly extending beyond the basal third; middle femora with a few short black bristles on the anterior side which are a little closer to the apex than to the base; hind femora with an anteroventral row of about eight long black bristles not reaching to the base as well as a few shorter ones about the tip above and in front; all the tibiae with rows of small, moderately equal black spicules and longer apical spurs; all the femora and tibiae densely covered with short, closely adpressed white elongate scales; tarsi with some tiny black bristles and with minute whitish pubescence which becomes reddish-yellow, coarser, denser and bristly on the soles; claws reddish- or brownish-yellow on the basal half and the rest black; pulvilli about half the length of the claws and pale yellowish or whitish.

Abdomen dull black or greyish-black obscured by long dense erect pubescence and an undercoat of short decumbent hairs which become gradually more dense towards the apex; the long erect pubescence is usually pale brownish-yellow or light honey colour about the basal fourth or third, and on the rest of the abdomen pale yellowish or whitish with many coarse long bristly hairs on the lower border of the segments, and practically without any black hairs, except for a very few (about two to fifteen) scattered here and there near the apex; the short decumbent hairs forming the undercoat usually extend from the lower third or lower border of the second segment, all the way down to the apex and are pale yellowish above but on the rest of the abdomen all whitish and pure white about the apex where they are usually very dense and tufted; venter grey with very sparse long pale yellowish or whitish pubescence including a few long black hairs and sparse short decumbent yellowish and whitish hairs which are generally more crowded together on the lower border of the sternites; hypopygium (Pl. XXXIV, fig. 500) blackish except about the apex reddish-brown and bearing longish stiff reddish hairs.

♀: Very similar to the male but the wings are always all hyaline, the thorax with a small blackish reversed V-shaped marking on the middle of the upper part of the disc, formed by tufted erect black hairs, in addition to the two pairs of dark spots, and the abdomen with numerous long black bristly hairs on the lower borders of the segments.

Head (Pl. XXXIV, figs. 501 and 502) covered with thin yellow dust, which gives it a brownish-black appearance; frons at the vertex almost one third the width of the head because the eyes are separated by a distance which is three times the breadth of the ocellar tubercle and clothed, except

on the middle part with sparse short decumbent coarse yellow hairs but which become white scales on the sides and all along the lower part where they are very dense and tufted, as usual, on each side of the base of the antennae; in addition the frons also bears numerous mixed black and yellowish or whitish long erect hairs all along the sides (but not very close to the eye margins).

Thorax with rather more numerous erect black hairs intermixed among the Isabella coloured pubescence and, in addition to the two small admedian blackish spots on the upper half of the disc (when viewed from above), as described in the male, with a small median blackish reversed V-shaped margin on the anterior margin also formed by tufted erect black hairs; when seen from in front the blackish V-shaped marking on the centre of the anterior border and the two other small blackish spots are evident; pre-alar bristles more numerous, reddish-brown and the postalar bristly hairs also besides being more in number, are stronger, many being true bristles; in addition to the long erect pubescence, the thorax also bears a fairly dense undercoat of very short decumbent yellow ochre hairs on the dorsum, and which, in the male is practically inexistant; scutellum with an undercoat of similar (to that of the thorax) decumbent hairs, in addition to the long erect pubescence.

Wings entirely hyaline and the 1st M₂ cell is decidedly longer and narrower than in the male.

Legs as in the male but the small black bristles on the anterior side of the middle femora are about three and the anteroventral row of long black bristles consist of about six or seven bristles.

Abdomen with very numerous long erect black bristly hairs (much longer than the pale hairs) on the lower border of all the segments, except the first, and with a dense undercoat of very short decumbent coarse hairs, which are usually all yellow ochre except on the lower margins of the second to fifth segments where they are whitish and rather more crowded and which cause a transverse banded design. Ovipositor blackish-brown with short erect whitish and yellowish hairs as well as with longer stiff black hairs.

♂, ♀ Length of body: 7.6-11 mm., of proboscis: 4.4-5.1 mm.; breadth (with wings expanded): 17.5-21.5 mm.

The characteristic coffee brown colour of this species varies but little in the rich series in my possession but I have pointed out the wide variations exhibited by the wings in the males. The presence of numerous long black bristly hairs on the posterior borders of the tergites in the female, is a constant character in more than fifty specimens examined by me, a fact which is in total disagreement with Becker's (1902, *loc. cit.*, p. 15) and Engel's (1937, *loc. cit.*, p. 252) descriptions who affirm that such black

hairs on the abdomen of the female are totally absent ! Macquart's original description in 1849 (*loc. cit.*) was based on one male specimen which was captured by the author : « Cette jolie petite espèce, dont je n'ai rencontré qu'un seul individu, habite les environs d'Alger; je l'ai prise en mars, dans le Boudjaréa ».

B. numida is one of the commonest *Bombylius* in Egypt. I have captured it in many localities in the neighbourhood of Cairo, Kerdasa, Abu-Rawash, Kafr Hakim, Mansouriah, and Magadlah; I have also collected it in large numbers in the Mariut district, from Amriah to Hammam. My dates extend from February 4th to the end of March. Becker records the capture (by himself) of four females « on the desert near Siala (Fayoun) in March, 1899 ». Dr. Engel's record of one female specimen (from my collection) of *B. cinerarius* from Kerdasah, 3.III.'26 refers without doubt to this species.

As far as I am aware, *B. numida* has not been found in any other country besides Algeria.

***Bombylius wadensis* NOV. SPEC.**

DIAGNOSIS :

A small to medium sized fuscous black species with blackish-brown legs except the basal half of the tibiae reddish-yellow or reddish-brown, closely allied to *B. Catheriniensis* but at once distinguished from it and *inter alia* by the wings which are more or less deep blackish-brown with this dark colour becoming gradually lighter towards the apex and the posterior margin (more evidently so in the male than in the female) and in which the r-m cross-vein is always placed before the middle of the 1st M₂ cell, by the presence of some erect black hairs on each side of the frons in the male, in addition to the short adpressed silvery white scales and in the female by the narrow frons (at the vertex) in which the eyes are separated by a distance which is about twice the breadth of the ocellar tubercle (in *Catheriniensis* this distance is almost or quite three times the breadth of the ocellar tubercle), and by the colour of the vestiture of the body.

DESCRIPTION :

♂ : *Head* (Pl. XXXIV, figs. 503 and 504) covered with a thin yellow dust : frons bearing some short adpressed glittering silvery white scales which are somewhat unevenly distributed, but usually forming two small admedian tufts above the base of the antennae, and two other longer lower (more dense) tufts, one on each side of the base of the antennae, leaving roughly

the upper angle, a narrow mid-dorsal line and two median lateral areas (between the above mentioned small and large tufts) almost bare of short white scales but with some erect not long black hairs (much shorter than the hairs on the first antennal segment) on each of the two last mentioned median lateral dark areas; face beard formed of almost all black long erect but not very dense hairs with a few scattered decumbent whitish or yellowish hairs above and with some (more or less numerous) yellow ochre ones below, along the lateral margins of the mouth, which are as long as the black hairs but less erect and drooping at the tips; the lower portion of the side-cheeks is bare and the jowls as well as the rest of the underside of the head bears longish soft whitish pubescence which is less dense on the front part than behind (the lower part of the occiput); occiput clothed with rather dense, coarse short erect whitish-grey hairs which forms a rather thick collar and rests on the longer and somewhat darker pubescence of the thorax; ocellar tubercle well elevated, blackish with a tuft of long erect black hairs except for about two or three whitish ones on the back part; eyes meeting for a space which is not quite as long as the length of the ocellar tubercle; proboscis dull black, about two or two and a half times the length of the head (including the antennae); palpi blackish with minute dark pubescence all over and with a few long stiff yellow or whitish-hairs near the tip beneath; antennae black, first segment with numerous long stiff black hairs all over and the second short cup-shaped segment with some minute erect black hairs about the tip; third segment narrow sub-conical and only a little longer than the two first segments together; style well developed; first segment black, almost cylindrical; minute apical segment and equally microscopic terminal sensory rod reddish-brown.

Thorax dull black hardly obscured by the sparse longish erect pale brownish-grey pubescence on the disc, mixed with some equally long, erect black hairs and showing a more or less sparse undercoat of very short decumbent golden yellow or yellow ochre hairs; on the sides of the upper half of the disc the erect pubescence is paler, dirty yellowish-white (except for the turned up tips of the blackish hairs from the long tufted pubescence on the upper parts of the pleurae, and which are usually well evident from above, in front of the wing base) and the long hairs on the postalar calli consist of mixed black and pale brownish- or yellowish-grey as well as of some black bristly hairs; immediately behind the wing base the long rather tufted hairs of the metapleural fan are also well evident from above and the uppermost hairs are blackish but most of the others, beneath are whitish; no chaetotactic bristles; pleurae grey, with long tufted pubescence on all the upper parts, which is mixed, pale brownish and blackish all about the anterior half (of the upper parts, and evident from above, as stated pre-

viously) but white behind, below the wing base; the pubescence on all the lower parts of the pleurae is very sparse (almost bare, beneath) short, adpressed and all white; scutellum with a vestiture (the long erect and the undercoat of very short decumbent hairs) similar to, and merging into that of the thorax and with a few of the longer upturned black hairs about the margin, coarser or bristly.

Wings dark blackish-brown all across the base (including the alula) and upper half (approximately almost to the apex of R_1 cell) and this colour sloping outwards and downwards but without a defined boundary and leaving usually the rest of the surface tinged pale blackish-brown or feebly but distinctly infuscated; sometimes this light infuscation on the lower half or so and apex is very faint or weak and this area appears almost hyaline (more often so in the female); r-m cross-vein placed on the middle of 1st M_2 cell and the latter is broad but not short; thick black basal part of the costa with numerous adpressed short golden yellow scaly hairs above and with short black bristles or tiny spines in front; alula blackish-brown, with a short blackish-brown fringe on the outer part and with a longer (but not much) mixed blackish and yellowish fringe near the base; squamae brownish-black with a black margin and a longish fringe which is formed mostly of dark brown and a very few whitish hairs; halteres with the stem more or less dark brownish-yellow and the knob brownish-black.

Legs usually entirely very dark reddish-brown, almost blackish but sometimes with the femora rather less blackish about the apical third and the middle and hind tibiae brownish-yellow on the apical half or third; coxae with long but not very dense whitish pubescence and the femora ventrally, with similar but much sparser mixed, whitish and brown hairs which, on the front and middle pairs extend almost to the apex on the posteroventral side (where they gradually become shorter) and on the hind femora hardly exceed the basal third; hind femora with an anteroventral row of about four short black bristles and only about two much smaller anterior and dorsal black bristles about the tip; all the femora and tibiae covered with very short, closely adpressed elongate, scales which are white except on the apical third of the hind femora and usually also about the apex of the middle femora yellow or orange; tibiae with the sparse rows of small, moderately equal spicules and little longer spurs black; tarsi with small black spurs and tiny dense bristly black pubescence; claws black except about the base reddish-brown; pulvilli a little more than half the length of the claws and greyish- or yellowish-white.

Abdomen dull black, rather obscured by long, erect, somewhat sparse mixed dirty greyish-white or white and black pubescence which is somewhat dense on the sides, and by an undercoat of more numerous soft very short

decumbent and almost curled hairs which are pale yellow or yellow except on the lower border of all the segments (except the basal) where they are rather crowded together and white and which give the segments an inconspicuous but distinct transverse banded appearance; venter grey or pale brownish-grey with sparse long greyish or whitish hairs and more numerous short depressed whitish hairs which show a tendency to be more crowded also, on the lower border of the sternites; hypopygium dark reddish-brown with short and longer pale reddish-yellow erect hairs.

♀ : Extremely like the male.

Head (Pl. XXXIV, figs. 505 and 506); frons at the vertex not more than one fifth the width of the head because the eyes are separated by a distance which is hardly twice the breadth of the ocellar tubercle and covered with a thin rusty greyish coloured dust which also extends on most of the face and occiput; the pubescence on the frons consists of some very short decumbent golden yellow or yellow ochre hairs scattered very unevenly about the upper half and even more scarce below except on the sides of the lower margin where they are much longer, less decumbent and silvery white (on each side of the base of the antennae), and of long erect black hairs all along the two outer thirds.

Wings as in the male but the weak infuscation on the lower half or so and apex is rather less rarely faint than in the male. Knob of halteres often yellowish-brown or brownish-yellow.

♂, ♀ Length of body : 6.8-8.4 mm., of proboscis : 3.5-4.5 mm.; breadth (with wings expanded) : 12.8-15.8 mm.

Eight males and sixteen females (including the types) of this very interesting and characteristic species are known so far. Three of the males were collected by my assistant Mohamed Tewfik Effendi from Gebel Elba during the first week in March 1928; the other five males and all the sixteen females were captured by Mohamed Tewfik Effendi, Mr. R. Strelowski and myself in Wadi Rishrash on April 16th 1938.

CYTHEREA

(Fabricius, 1794, Entom. System., IV, 413, 244)

SYNONYMY :

Chalcochiton Lw. (1944), *Stettin. Entom. Zeitg.*, V, 157, 6.

Glossista Rond. (1856), *Dipterol. Ital. Prodr.*, I, 163, 4.

Lonchocerus Rond. (1863), *Archiv. p. l. Zool.*, III (sep.), 61, (*Logococcus*).

Mulio Latr. (1796), *Précis. caract. gen. Ins.*, 155.

TYPE OF THE GENUS.:

obscura F. (1794), Entom. System., IV, 413, 1.

Small to large bristly and scaly flies distinguished by the remarkably broad frons (at the vertex) in both sexes, the distance between the eyes in the male being only a little narrower than in the female, and by the antennae which are very widely separated at the base.

Head large, strong and broader than the thorax; frons large, face very broad and both regions often clothed with erect bristly hairs and scales; ocellar tubercle large and rather prominent; eyes in the male separated by a distance which is at least one and a half times the breadth of the ocellar tubercle, with the upper facets (of about the upper half) usually enlarged, and in the female this distance is broader; occiput hardly puffed out in the male and somewhat more so in the female; proboscis short and only occasionally as long as the head (including the antennae); antennae very widely separated at the base by a distance which about equals the entire length of an antenna; first segment usually a little longer than the short second segment, and the third is about as long as the two first segments together, usually conical (more or less narrow) in shape and ending by a minute sensory hair or bristle.

Thorax and abdomen clothed with erect pubescence, which is never very dense or long, and with very numerous, often dense adpressed scales; these scales frequently exhibit distinct longitudinal stripes which, are either of uniform colour (and contrasting with the colour of the back ground) or formed of paler coloured scales alternating with darker ones; numerous bristles present on all the margins of the disc, the strongest ones in the position of the pre-alar (and preceded by numerous bristles on the upper part of the mesopleura and on the notopleural suture), the supra-alar and the postalar; pleurae usually with sparse erect pubescence and scales as well, except on the upper half of the mesopleura where it is somewhat tufted and accompanied by the bristles mentioned above; metapleura with sparse erect but not long pubescence; scutellum with a similar vestiture as the dorsum of the thorax (i.e. with scales, sparse hairs, and some bristly hairs or bristles) and with numerous strong marginal bristles.

Wings often with a brown colouration extending on the basal half which may possess a sharply defined margin or which may gradually fade away towards the middle; the centre of this brown area often possesses a pale yellow or whitish spot (called by Loew « Fensterfleck »); sometimes the wings are mottled all over; usually the colour of the wings is much paler in the female than in the male; basal portion of vein R_4 placed at right angles with vein R_5 (at the point of its bifurcation with vein R_5) and showing

a tendency to emit a stump in R_2 cell, but occasionally a complete cross-vein is emitted from vein R_4 and dividing R_3 cell into two, thus causing the presence of three submarginal cells (*obscura* F.), instead of the usual (in all Egyptian species) two; r-m cross-vein placed towards the middle of 1st M_2 cell and this cell is very obtuse at the end, with the vein forming its distal posterior border remarkably undulated and often emitting before its middle a small appendix or stump in the cell; R_5 and 1st A cell open at the margin; alula small; squamae well developed, with a soft, short delicate fringe; halteres large.

Legs elongate with dense, closely adpressed scales on the femora and tibiae which, as a rule, considerably obscure the ground colour; in addition the femora and tibiae are provided with numerous strong spines and spurs and the tarsi with much shorter spines beneath; pulvilli usually atrophied in both sexes (less than half the length of the claws), but occasionally (*Chalcochiton*) normally developed (almost as long as the claws).

Abdomen with dense scales like the thorax, which are frequently also of two different colours and form transverse or longitudinal stripes or both, on the dorsum; the basal segment always bears dense erect and brush-like pubescence; on the rest of the abdomen, the erect pubescence (in addition to the scales) is always more dense and somewhat longer on the sides and often very sparse on the dorsum; more or less strong coarse bristles occur on the lower border of the segments, particularly in the female; venter with the scales and erect pubescence paler than on the dorsum and sometimes with bristles on the lower margin of the sternites but which are usually shorter (than the dorsal) and black towards the apex; hypopygium small and concealed; ovipositor set with weak spines which are often concealed.

The genus *Cytherea* F., of which *Mulio* Latr. is a synonym is here used as including *Chalcochiton* Lw., *Glossista* Rond., and *Lonchocerius* Rond., since as stated by previous authors (Bezzi, 1925, *Bull. Soc. Roy. Entom. Egypte*, 1924, 174; Paramonow, 1930, *Mém. Acad. Sciences Ukraine*, Tom. XV, livr. 3, 357, and Engel, 1932-1937, in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 319-350, f. 130-134) it is impossible to draw a sharp dividing line between these groups or categories. Loew, in erecting *Chalcochiton* in 1844 regarded the short proboscis and the presence of pulvilli as among the characters of generic value, but unfortunately the proboscis in the different species of *Cytherea* varies considerably in length, and species in which it is elongate possess atrophied pulvilli.

Engel⁽²³⁾ correctly states that the characters exhibited by the broad

(23) Engel (1932-37, *loc. cit.*, p. 319) describes the metapleura as possessing no hair-fan. It is true that the hairs on this region are not long or dense enough to be termed a « hair-fan » but the metapleura is by no means bare, as might be interpreted by the above designation.

frons in both sexes and the wide insertion of the antennae shows a close relationship between this genus (as well as the genera *Callistoma* Macq. and *Gyrocraspedum* Beck.) and the Bombyliidae Tomophthalmae.

The biology of a few species is known. According to Paramonow (1930, *loc. cit.*, p. 357) certain species of *Cytherea* are known to be important parasites of the locusts *Stauronotus maroccanus* and *Calliptamus italicus*. Séguy (1930, *Mém. Soc. Sciences Nat. Maroc*, No. XXIV, p. 95, f. 75) gives a figure of the pupa of *C. holocericea* F. and states that in Morocco pupae of this species were found in the nest of a burrowing bee, *Panurgus canescens* Latr.

The actual number of species of *Cytherea* recorded from Egypt in the present volume has been considerably reduced owing to the fact that I have felt myself almost compelled to drop several names (*delicata* Beck., *argenti-frons* Macq., *bisalbifrons* Bez., *discipes* Beck. and *nitidapex* Bez.) to the rank of synonymy. In spite of this reduction which might appear somewhat drastic, I am unable to draw any constant sharp line of distinction between two or three of the remaining nine species, such as *alexandrina* Beck., *maroccana* Beck., and *thyridophora* Bez.

TABLE OF SPECIES

- 1 (2) Ochraceous tawny species with almost entirely pale yellow or cinnamon buff legs **aurea** F.
- 2 (1) Black, blackish or dark coloured species, if pale coloured, never ochraceous tawny but olive buff or greyish-olive; legs blackish or partly black and partly reddish-yellow.
- 3 (4) Wings conspicuously mottled brownish-black and all the cells at the apex and lower margin with dark centres, often broken up by pale interruptions **nucleorum** BECK.
- 4 (3) Wings never conspicuously mottled and if more or less dark blackish-brown on the proximal two-thirds and this dark area interrupted by one or two light spaces, then all the cells at the apex and lower margin never with dark centres.
- 5 (6) Lower third of frons, face and second to fifth abdominal segments of male clothed with very dense glittering argenteous scales; female with numerous black bristles on face bordering the upper and side margins of the mouth **argyrocephala** MACQ.
- 6 (5) Head and abdomen of male without dense glittering argenteous scales anywhere; face of female without black bristles.
- 7 (10) Wings of male with the proximal two-thirds brownish-yellow or yellowish-brown and this coloured area almost uniform throughout, without paler interruptions; wings of female almost entirely hyaline except about the base and the Sc yellow.

- 8 (9) Proboscis very short, hardly longer than the mouth opening; erect black pubescence on upper two-thirds of frons of male extending down on the sides of the upper half of face; upper part (half) of frons of female dull black, not shining **albolineata BEZ.**
- 9 (8) Proboscis as long as the head (including the antennae); erect black pubescence on upper third or half of frons of male not extending anywhere beyond this area; upper half of frons of female very shining black (almost always) **maroccana BECK.**
- 10 (7) Wings in both sexes with the proximal two-thirds brownish-yellow or brownish-black and this coloured area interrupted by one or more pale spaces and a small fenestra or « window » on the upper corner of 2nd M cell.
- 11 (16) Small or medium sized species not exceeding 13.5 mm. in length.
- 12 (13) Frons in male with the erect pubescence yellowish or whitish even above, in the female with a few blackish hairs about the centre above; dorsum of thorax with two or three whitish longitudinal stripes **alexandrina BECK.**
- 13 (12) Frons in both sexes with the erect pubescence on the upper two-thirds or more all black; dorsum of thorax without whitish longitudinal stripes.
- 14 (15) Wings with the coloured area (yellowish-brown) interrupted by a fairly conspicuous light (pale yellowish) space towards the middle of the upper half; vestiture on dorsum of thorax and abdomen in both sexes with the undercoat formed of whitish and yellow ochre elongate scales **thyridophora BEZ.**
- 15 (14) Wings with the coloured area (brownish-black) hardly interrupted by an inconspicuous lighter (brownish-yellow) space towards the middle of the upper half; vestiture on dorsum of thorax and abdomen in both sexes with the undercoat formed of whitish and ochraceous orange scaly hairs **wadensis NOV. SPEC.**
- 16 (11) Unusually large species, 10.5-15 mm. in length; upper part of basal two-thirds of wings in both sexes brownish-yellow, yellowish-brown or blackish-brown, area about stem of fork R_{2+3} and R_{4+5} paler **barbara SACK.**

Cytherea albolineata BEZ.

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 176, 3 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, Tom. XV, livr. 3, 369; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 325.

DIAGNOSIS :

A medium sized (rather small) to fairly large species with the erect pubescence on the abdomen of the male almost pure white and without bristles and in the female also whitish, with the short weak bristles on the hind border of the segments whitish or pale yellow, distinguished by the yellow or olive ochre undercoat of very short adpressed scales on the abdomen in both sexes which are white (and more dense) on the centre forming a more or less conspicuous pale median longitudinal stripe.

DESCRIPTION :

♂ : *Head* (Pl. XXXV, figs. 507 and 508), except the upper part of the occiput and vertex, bearing short adpressed scales which are very sparse on the upper half (or less) of the frons but more dense on the lower half, as well as on the face, and these scales are yellow on the upper two-thirds of the frons and whitish elsewhere (lower third of frons and face); frons with erect longish pubescence which is all black on the upper two-thirds and both outer sides of the lower third where it extends down also on the upper sides of the cheeks, but whitish, shorter and less dense elsewhere; face light neutral grey, bare in the middle (except for the scales mentioned above) and, except for the black pubescence on the sides, with shorter whitish or yellowish pubescence, and below, on the mouth margin with longer yellow or pale yellow bristly hairs; the erect pubescence on the lower part of the head is short and whitish; occiput with numerous short adpressed yellow (pale or olive ochre) scales on the side orbits and with short erect greyish or dirty yellowish pubescence except above where a tuft of much longer hairs occurs on the vertex, immediately behind the ocellar tubercle and appearing as if belonging to the back part of the latter; ocellar tubercle with tuft of erect hairs which are of the same colour as those just mentioned, but with some black hairs on each side and in front (behind the anterior ocellus); eyes separated by a distance which is about twice as broad as the width of the hind ocelli (the base of the ocellar triangle); proboscis very short, hardly longer than the mouth opening, obscure reddish-brown or blackish; palpi blackish with soft but erect yellowish hairs ventrally; antennae black but appearing neutral grey owing to a thin whitish dust: first segment broader than long and bearing short erect whitish or yellowish pubescence all over but which often seems to be rubbed off, above; second segment also broader than long, subglobose and bare; third segment varying in shape from sub-cylindrical to elongate conical, or strap-shaped and about one and a half times the length of the two first segments together.

Thorax dull velvety black with a distinct brownish tinge when viewed

in certain lights, clothed with very sparse soft erect and not long, whitish or dirty greyish-yellow pubescence on the dorsum and with a sparse undercoat of very short decumbent olive ochre scaly hairs which are scattered all over and do not form any design; all the bristles whitish or chamois; pleurae blackish-grey with the soft pubescence whitish except the more tufted hairs on the upper front part of the mesopleura usually yellowish.

Wings usually with the proximal half (or rather more) more or less pale brownish-yellow without sharp delimitation and this brownish colour covering the Sc cell, the proximal two-thirds of 1st M_2 cell and the apex of 1st A cell, leaving the rest of the wing hyaline; this brownish-yellow colour may occasionally be extremely pale and ill-apparent; position of r-m cross-vein very variable as it may be placed a little before, on, or just after the middle of 1st M_2 cell and the vein forming the lower border of the latter with or without a small stump or appendix; 1st A cell distinctly narrowed at the apex; alula with a blackish margin and a very short brownish fringe; squamae brownish-yellow (rather pale) or yellow, with a thick yellow margin and a short yellowish fringe; halteres brownish-yellow with the knob usually cream buff.

Legs with the coxae, trochanters and femora black except the apices of the latter testaceous like the tibiae; tarsi obscure dark reddish-brown and the apical segments even darker (blackish); coxae with sparse white scales and some erect whitish hairs; femora with sparse erect soft whitish hairs beneath and with the dense scales whitish beneath but yellowish or yellow on the sides and above, particularly towards the apex; all the bristles, spicules and spurs on the legs are black; middle femora with an antero-ventral row of three bristles on the distal third; hind femora with a similar row of about four bristles after the basal half and about three smaller ones near the tip above; scales on tibiae yellowish or yellow; claws black except about the base or the basal half reddish-yellow or reddish-brown; pulvilli atrophied, about one third the length of the claws and yellowish-white.

Abdomen dull black, clothed with long erect fairly dense white or whitish pubescence and with an undercoat of short adpressed chamois or olive ochre scaly hairs, which are somewhat longer and pale yellowish or white on the centre forming a pale often inconspicuous median longitudinal line; no bristles or bristly hairs on the lower border of the tergites; venter blackish-grey with the lower border of the sternites obscure brownish-yellow and clothed with sparse long but soft erect white hairs and dense adpressed white scales except on the paler lower borders of the sternites which are bare; hypopygium obscure dark reddish-brown or blackish with sparse stiff but not long reddish-yellow (pale) hairs.

♀ : Not very much like the male because the body is broader, the

abdomen less conical, the wings all hyaline except about the base and the Sc cell pale yellow, and the general vestiture of the body different to that of the male. This vestiture consists of the usual reduction of the soft erect pubescence, a considerable increase in the density of the undercoat of short adpressed olive ochre scales, with those on the centre of the abdomen forming a more conspicuous whitish mid-dorsal line, and of the usual more numerous and stronger chaetotactic bristles including erect long, but not strong yellow bristles on the posterior border of the abdominal segments.

Head (Pl. XXXV, figs. 509 and 510); frons at the vertex twice as broad as that of the male, i.e. the eyes are separated by a distance which is about four times as broad as the width of the hind ocelli (the base of the ocellar triangle); the vestiture on the head is very much as in the male except that the erect black hairs on the upper half (or rather more) of the frons and the rest of the less erect and shorter whitish hairs on the face are coarser, and the undercoat (olive ochre on the upper two-thirds of the frons and vertex and whitish on the rest of the frons and face) of adpressed scales is more dense.

In well preserved unrubbed specimens the adpressed scales on the dorsum of the thorax form three inconspicuous but distinct longitudinal stripes which are olive ochre and somewhat contrast with the velvety black ground colour.

Ovipositor blackish, with numerous short whitish scales and stiff yellowish hairs; spines apparently concealed.

♂, ♀ Length of body : 7.3-13 mm., of proboscis : 1.4-2.3 mm.; breadth (with wings expanded) : 12.6-22 mm.

Professor Bezzi (1925, *loc. cit.*, p. 176, 3) gave the first description of this species from specimens I had sent him from Egypt and writes the following (as diagnostic characters) : « Semblable à *dispar* Lw. des pays transcaspiens (mais cité aussi d'Algérie par Becker en 1915), ayant aussi les ailes différemment colorées dans les deux sexes et la trompe très courte; mais il se distingue par plusieurs caractères et par la ligne blanche le long du milieu de l'abdomen. Plusieurs exemplaires de Wadi Hoff en Avril et de Mariout en Mai ».

This apparently endemic species is common in two very different localities in Egypt, namely the Mariout district and the South Eastern Desert. I have long series of over forty males and sixty females which I have collected in Mariout (Amriah to Hammam and Abu Mina) and in many of the Wadis North and South East of Cairo and Helouan (Suez Road, Wadi Hoff, W. Zohleiga, W. Dar el-Maskhara, W. Rasheed and W. Um-Eleek); I have captured a few specimens of both sexes at Ein Gedeirat (Kosseyema, North Sinai). My dates extend from March 20th to June 2nd.

C. albolineata has not been so far recorded from any other country.

Cytherea alexandrina BECK.

Becker (1902), *Mitteil. Zool. Mus. Berlin*, II, 30, 39 (*Mulio*) et (1903), *Zeitschr. f. Syst. Hymen. u. Dipt.*, III, 24 et 92, 13 (*Mulio*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 177, 6 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 370; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 326.

SYNONYMY :

delicata Beck. (1906), *Zeitschr. f. Hymen. u. Dipt.*, VI, 153, 85 (*Mulio*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 177 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 382; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 332, f. 133, Tab. V, f. 63; Austen (1937), *Bombyl. of Palestine*, 49, 31.

DIAGNOSIS :

A small to rather large olive grey to greyish-olive species, distinguished *inter alia* by the two or three whitish longitudinal stripes on the dorsum of the thorax formed by adpressed scales, the more or less elongate proboscis and by the basal two-thirds of the wings usually more or less deep brownish-yellow and which colour is almost always much darkened (often dark brown or blackish-brown) on four or five small areas and giving the wings a somewhat spotted appearance.

DESCRIPTION :

♂ : *Head* (Pl. XXXV, figs. 511 and 512) pallid gull grey; frons clothed with dense decumbent pure white elongate scales except above, at the vertex on a triangular space bordering the sides and apex of the ocellar tubercle which is quite bare (of scales and often of hairs as usual); in addition, the frons bears sparse longish pubescence which is absent on the sides and which is blackish or brownish on the upper third and white, less erect, or yellow elsewhere; face covered with dense white scales like the frons and bearing shorter shaggy white pubescence which is usually very sparse or sometimes yellow about the centre and a little longer and more dense on the sides as well as on the mouth margin; on the lower side of the head the pubescence is short, not dense, erect and white; occiput with numerous white scales on the orbits and with short erect whitish or greyish pubescence except above, where a tuft of much longer upstanding whitish or pale brownish hairs occurs on the vertex or more correctly speaking, on the elevated broader back part of the ocellar tubercle; the tuft of shorter erect pubescence on the ocellar triangle (which appears to be the narrower

front part of the ocellar tubercle) is black; eyes separated by a distance which is about three times as broad as the distance between the two hind ocelli; proboscis dull black and varying considerably in length from as long as the head (or of the front tarsi) to more than twice the length of the head (including the antennae) (or as long as the front tibia and tarsi together); palpi blackish with minute sparse erect yellowish hairs; antennae black but the two first segments covered with white dust; first segment almost as broad as long and bearing short sparse erect white or yellow hairs all over and sometimes scales as well; second sub-globate segment with minute, sparse mixed whitish and blackish erect hairs and occasionally with scales; third segment elongate conical and a little longer than the two first segments together.

Thorax dull black with the sparse insignificant erect pubescence on the disc mixed, whitish or yellow with some blackish hairs, and clothed with adpressed pure white elongate scales as well as with short, equally adpressed scaly hairs; the white scales form two admedian stripes on the upper half of the disc and often a median narrower stripe but which extends to the lower margin, and the scales also occur on the outer sides of the disc, while the scaly hairs vary in colour, from white to olive ochre and are scattered on the rest of the surface (in between the areas covered by the scales); when these scaly hairs are whitish the white longitudinal stripes (formed by the scales) are rather inconspicuous but when they are yellow or olive ochre the design is very evident; all the bristles are whitish (yellow) or yellow and darker about the base; pleurae greyish-black, clothed with pure white elongate scales and whitish erect pubescence which is longer and accompanied by many weak yellowish bristles on the upper part of the mesopleura, and very sparse elsewhere; metapleura with a thin tuft of erect, but by no means long white hairs; scutellum with a sparse erect pubescence similar to that of the thorax, bearing numerous adpressed scales which are usually yellowish-white on the upper border and on the dorsum but yellow and more crowded about the margin, and with numerous long but not strong yellow marginal bristles.

Wings with the basal two-thirds coloured pale brownish-yellow to blackish-brown and which colour almost always darkened (blackish-brown or blackish) beneath the base of the stem of the fork R_2+3 and R_4+R_5 (in R cell), on the base of vein R_2+3 , on the r-m cross-vein, and on Cu_1 vein; frequently also this coloured area possesses its distal third distinctly darkened, thus rather strongly contrasting with the hyaline apical third of the wing and the outer border of this dark area extending from the apex of the Sc cell down very irregularly over the proximal third of R_5 cell, the basal two-third of 1st M_2 cell, to the apex of 1st A cell; often this coloured

area is very weak (pale brownish-yellow) and the darkened areas mentioned above very ill-defined; position of r-m cross-vein very variable, usually placed after or well after the middle of 1st M_2 cell but often on the middle and occasionally before the middle of this cell; the vein forming the lower border of 1st M_2 cell often without an appendix, but frequently also with a more or less short one, and occasionally the appendix extends to the vein forming the upper border of the cell and thus dividing the latter into two cells; vein R_2+3 rarely emits a tiny appendix towards the middle, in R_1 cell and very occasionally also a second appendix may be emitted towards the distal third of 1st M_2 cell, from the vein forming the lower border of this cell; 1st A cell not much narrowed at the apex; alula with a blackish margin and a very short pale brown fringe; squamae pale yellow with a thick more or less pale yellow margin and a short whitish fringe; halteres reddish-yellow or yellowish-brown on the stem and the knob usually cream buff.

Legs of the same colour as in *albolineata* and with a similar vestiture (pubescence and scales); all the bristles, spicules and spurs are also black; front and middle femora each with an antero-ventral row of about five bristles but the row on the front pair being very small, and the middle femora sometimes with one or two posteroventral ones nearer to the apex than the base; posterior femora with an anteroventral row of about five (stronger than all the preceding) bristles and two or three shorter ones near the apex above; claws black but more or less obscure reddish-brown about the base; pulvilli much atrophied, minute and whitish or yellowish.

Abdomen dull black clothed with very sparse erect pubescence except on the sides near the base where the hairs are more dense and often yellowish but whitish elsewhere and with dense adpressed elongate scales, a larger proportion of which are chamois or olive ochre but all those on the upper border and towards the centre of the segments are whitish, thus often giving to the abdomen a more or less evident transverse banded appearance and with a mid-dorsal pale stripe as well; all the lower borders of the segments except the first, with a row of fairly strong erect yellowish or yellow bristles; venter greyish-black with the lower borders of the sternites more or less obscure brownish-yellow with very sparse long erect whitish pubescence and more numerous pure white adpressed broad scales; genitalia obscure reddish-brown or blackish, with very short stiff blackish pubescence.

♀ : Very similar to the male except for the stronger development of the chaetotactic bristles as usual, and the greater density of the scales covering all the body.

Head (Pl. XXXV, figs. 513 and 514) grey; frons at the vertex not

more than one and a half times as broad as that of the male because the eyes are separated by a distance which is hardly more than three times the breadth of the ocellar tubercle; frons with the erect pubescence all blackish, brownish-yellow or pale yellow above (on the upper half and sides) and often with a median tuft of blackish hairs (on the upper part of the median furrow) but on the lower half the pubescence is much paler (pale yellow or whitish) and often true bristles occur instead of the bristly hairs; the dense scales are usually chamois or olive ochre all about the vertex and upper part or half of the frons but whitish or pure white elsewhere; face as in the male.

Wings as in the male but with the brown colour on the proximal two-thirds rather more frequently very weak.

Gvipositor blackish with short stiff blackish pubescence and the spines apparently concealed.

♂, ♀. Length of body : 5.3-13.5 mm., of proboscis : 1.4-4.5 mm.; breadth (with wings expanded) : 9.6-22 mm.

The characters accepted by previous authors for differentiating between, and separating Becker's spp. *alexandrina* and *delicata* are very superficial and by no means constant, a fact which is confirmed by the very rich material of both sexes (and of both so called species) I was able to study and which had been collected from very different localities in Egypt. Bezzi (1925, *loc. cit.*, p. 175) in his key to Egyptian species distinguished *delicata* (*Glossista*) from *alexandrina* (*Glossista*) merely by the presence or absence of two distinct white lines (longitudinal stripes) on the dorsum of the thorax, as well as by the presence or absence of spots on the obscure (brown) part of the wings. Many specimens of the series (more than seventy of each sex) from Egypt are intermediary forms, in which the two above mentioned characters do not show a sharp line of distinction and consequently cannot be made use of. Moreover, the size in both so called species varies considerably and is quite independent of the colour of the scaly covering of the body as well as of that of the wings. I am of the opinion, therefore, that Becker's older name *alexandrina* be retained and *delicata* dropped to the rank of synonymy.

C. alexandrina is one of our commonest Bombyliid and has a very wide distribution in Egypt. I have frequently collected it on the Western Coast between Alexandria and Mersa Matrouh. It is also common in the neighbourhood of Cairo (Abu Rawash, Kerdasah, Kafr Hakim, Ezbet el-Nakhl); I have also captured numerous specimens at Helwan, Wadi Hoff, W. Dar el-Maskhara and at Ein Gedeirat, Kossayema (North Sinai). Many specimens were obtained also from the extreme southern border of Egypt

and the Soudan, Gebel Elba (Wadi Edeib and Kanssisrob). My dates extend from the beginning of March to the end of May.

C. alexandrina (delicata) is also known from Tunis, Algeria and from Palestine.

***Gytherea argyrocephala* MACQ.**

Macquart (1840), Dipt. éxot., II, 1, 55, 1, Tab. XX, f. 9 (*Anthrax*) et (1849), Explor. Scient de l'Algérie, Zool., III, 459, 137 (*Anthrax*); Loew (1860), Dipt.-Faun. Südafr., I, 177, 4 (*Mulio*); Becker (1902), Mittell. Zool. Mus. Berlin, II, 30, 40 (*Mulio*) et (1903), Zeitschr. f. system. Hymen. u. Dipt., III, 26, et 91, 8 (*Mulio*); Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 174, 176, 1 (*Chalcochiton*); Paramonow (1930), Mém. Acad. Sciences Ukraine, T. XV, livr. 3, 373; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 328; Austen (1937), Bombyl. of Palestine, 48, 50, 32.

SYNONYMY :

argentifrons Macq. (1849), Explor. scient. de l'Algérie, Zool., III, 459, 138, Tab. III, f. 11 (*Anthrax*); Loew (1860), Dipt.-Faun. Südafr., I, 177, 3 (*Mulio*); Becker (1903), Zeitschr. f. system. Hymen. u. Dipt., III, 25, et 194, 20 (*Mulio*); Paramonow (1903), Mém. Acad. Sciences Ukraine, T. XV, livr. 3, 373; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 327.

bisalbifrons Bez. (1922), Mem. Soc. Entom. Ital. Genova, 147 (*Chalcochiton*); Paramonow (1930), Mém. Acad. Sciences Ukraine, T. XV, livr. 3, 377; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 329, f. 131.

DIAGNOSIS :

A median sized species, at once distinguished in the male by the very dense tufted glistening silvery white scales covering the lower part of the frons and all the face as well as the second to fifth segments of the abdomen and the basal half of rather more of the wings coloured more or less dark blackish-brown, and in the female by the shining black vertex and upper half of the frons clothed with erect black hairs, the three whitish longitudinal stripes on the dorsum of the thorax (formed by scales) and by the dense deep olive buff scales covering the abdomen which are a little longer and more tufted on the lower borders of the segments and which give the abdomen a somewhat transverse banded appearance; erect bristly hairs on lower margin of segments all black (in female).

DESCRIPTION :

♂ : *Head* (Pl. XXXV, figs. 515 and 516); frons clothed with rather

dense erect but not long black pubescence only, on rather more than the upper third and sides of the upper half, with the ground colour of these areas (showing through the pubescence) rather shining black; the rest of the frons and all the middle third (or rather more) of the face densely covered with very tufted decumbent argenteous broad and elongate scales, although the erect black hairs extend down on each side of the lower half of the frons, in addition to the scales; the sides of the face and genae bearing less dense argenteous scales which are somewhat concealed by longer erect whitish or yellowish pubescence but all the upper and side margins of the mouth is fringed with stiff black bristly hairs; on the lower side of the head the pubescence is sparse, short, erect, soft and white; occiput with a few olive buff scales about the sides and sparse short black bristly pubescence except above where it is a little longer, softer and pale yellowish-grey; vertex bare on both sides of the ocellar tubercle but the latter bearing a fairly dense tuft of long erect hairs which are very pale greyish-yellow on the back part (about the basal third) and black on the rest; eyes separated by a distance which is hardly broader than twice the distance between the two hind ocelli; proboscis dull black, usually hardly longer than the mouth opening but sometimes (when exerted) almost as long as the head; palpi brownish-black or dark brown, longer than half the length of the proboscis (when the latter not exerted) and with a ventral row of longish pale brown hairs; antennae black; first segment clothed with short stiff black hairs which are usually a little longer beneath and sometimes, among these longer hairs are interspersed some pale ones; second segment with some very short stiff black hairs above; third segment about one and a half times the length of the two first segments together and when viewed from above very narrow elongate conical but in profile broad lanceolate and often appearing obscure yellowish at the base.

Thorax deep velvety black with the erect pubescence varying from almost exclusively black with a very few whitish hairs or mixed, with the black hairs about equal in proportion to the whitish ones, and with an undercoat of olive buff elongate scales as well as short hairs, forming three more or less distinct longitudinal stripes of which the median is the narrowest, and covering also the side margins of the disc; usually the three pale (olive buff) longitudinal stripes (contrasting with the velvety black ground colour) are distinct on the anterior half of the disc only, but frequently they are ill apparent owing to the scales being very sparsely scattered in the position of the stripes, and occasionally they are practically inexistant (most probably owing to the scales having been rubbed off); all the strong notopleural, the weaker postalar and supra-alar, as well as the longer postalar bristles are usually black; pleurae greyish-black with sparse short erect soft

whitish-yellow hairs except on the upper part of the mesopleura where the pubescence is somewhat longer, more dense, pale brownish and includes a few yellowish or black bristles; metapleura apparently bare; scutellum with very sparse erect yellowish pubescence, an undercoat (not dense) of olive buff scales which are somewhat broader and longer than those on the thorax and with numerous long upturned bristly hairs about the margin, some of which black, and some, yellowish or olive buff.

Wings with rather more than the basal half pale brownish-yellow or dark blackish-brown with the outer border of the coloured area not sharply defined and extending obliquely down from the apex of the Sc cell, covering the basal fourth of cell R_{5+6} , to, or a little before the tip of 1st A cell; r-m cross-vein placed just after, or on the middle of 1st M_2 cell, and the vein forming the lower border of this cell distinctly less undulated than in all the other Egyptian species because it does not join vein M_3 at right angles, and is usually without an appendix; 1st A cell moderately narrowed at the tip; alula small, more or less dark brown, with a black margin and a minute brownish fringe; squamae more or less dark blackish-brown with a thick black margin and a short slight white or pale brownish fringe; halteres dark olive buff or buffy brown with the base of the stem darker (often blackish) and the apical portion of the knob much paler (cream buff).

Legs very dark brownish-black or very dark reddish-brown but appearing blackish; coxae with longish sparse erect pubescence, which is obscure greyish or whitish; femora with sparse whitish pubescence beneath and shorter, obscure brown hairs on the sides; all the spines, spicules and spurs are black; front femora without spines; middle femora with two short anteroventral spines on the apical half and the posterior femora with about three anteroventral ones also on the apical half, as well as with about three smaller spines near the tip above; the adpressed scales on the femora and tibiae almost all whitish beneath but yellowish dorsally; claws reddish-yellow except at the apex black; pulvilli well developed, a little shorter than the claws and light olive buff.

Abdomen black, characterized by closely adpressed broad glittering argenteous scales very densely covering the second to fifth segments and equally adpressed but less broad dark olive buff scales and short hairs on the sixth and seventh segments; the erect pubescence is long, rather tufted, olive buff on the basal segment, particularly on the sides but whitish on the sides of the second to the fourth segments but on the dorsum it is practically inexistant as, on the lower borders of the second and third tergites occurs a row of long erect (hardly bristly), whitish hairs in the position of the usual bristles and on the lower margin of the rest of the segments the rows of hairs are usually black and become longer and more bristly towards

the tip; usually the silvery scales are absent on the upper border of the second segment, and often all about the middle third of the dorsum (of the abdomen) they possess a weak but distinct yellowish tinge; venter uniformly clothed all over with rather dense and tufted long erect soft whitish pubescence and dense pure white broad scales but the two apical sternites often bearing a few long erect black bristly hairs; hypopygium blackish with short erect obscure brown and blackish pubescence.

♀ : *Novum* (apparently unknown!).

Rather unlike the male as the entire aspect is more plump (the abdomen being much broader); the wings almost entirely hyaline except on the base and the Sc cell pale brownish-yellow or yellowish-brown, and the scales on the anterior parts of the head (face and lower third of frons) as well as on the second to fifth abdominal segments are much less dense and are not of a glittering silvery white colour being whitish or olive buff on the head and dark olive buff on the entire abdomen.

Head (Pl. XXXV, figs. 517 and 518) bearing a thin whitish dust except on all the entire upper two-thirds of the frons which is very shining black and clothed with erect but not long black pubescence only; the lower third of the frons bearing less numerous, somewhat shorter erect hairs which are mostly black except some whitish ones on the lower margin, and with adpressed broad scales which are less tufted than in the male and dull, whitish or yellowish (often pale yellow about the centre); vestiture on face consisting of similar scales to those on the lower third of the frons, yellowish or pale yellow, more dense on the middle third, and sparser, whitish on both outer thirds, and of whitish erect not dense and not long pubescence, which is practically inexistant on the middle third; the black bristly hairs bordering the mouth margin, are more numerous, longer and stronger than in the male; frons at the vertex one third the width of the head or about twice as broad as that of the male, because the eyes are separated by a distance which is rather more than three times the width of the hind ocelli.

Thorax not unlike that of the male but with the adpressed broad scales and short hairs usually paler (yellowish or whitish) and more dense forming more evident and distinct longitudinal stripes.

Abdomen in well preserved, unrubbed specimens densely clothed all over with closely adpressed deep olive buff broad scales which are somewhat longer and usually a little darker on the hind borders of the segments causing a somewhat transverse banded appearance; often the scales on the centre of the dorsum are also somewhat paler (whitish) and those on each side (except the lower margin) obscure brownish, so that the transverse banded effect and the mid-dorsal stripe are more apparent, such is frequently the case also in somewhat rubbed specimens in which most of the scales are

absent, except those on the lower and upper borders of the segments; the bristly hairs on the lower borders of the second to fifth segments are all black and gradually increasing in length and strength towards the tip. Ovipositor black clothed with adpressed pale yellowish scales, short blackish stiff hairs and reddish hairs about the tip.

♂, ♀ Length of body : 5.5-8 mm., of proboscis : 1.5-2.5 mm.; breadth (with wings expanded) : 10-15 mm.

I feel almost convinced of the synonymy of *argentifrons* Macq. and *bisalbifrons* Bez. with *argyrocephala* Macq. in spite Mr. Paramonow's statement (1930, *loc. cit.*, p. 374) concerning the specimen determined by me as *C. argyrocephala* and which he had found in Dr. Th. Becker's collection. Concerning this specimen he says that it is a very different species from that which is found under that name in Loew's collection. Mr. Paramonow further states that my specimen is very closely allied to the species belonging to the group *pallasi* Lw., while Loew's specimens are allied to the species *obscura*, *alexandrina* and *fenestrata*. Finally he ends by : « Das Efflatoun'sche Exemplar charakterisiert sich sehr gut durch silberne Schuppen, welche fast den ganzen Hinterleib bedecken (am meisten ist es der *C. holocericea* ähnlich). Da ich dieses Exemplar momentan vor mir nicht habe, kann ich nicht etwas zuverlässiges darüber sagen ». Neither Mr. Paramonow, Dr. Becker, nor Dr. Engel state that they have examined Macquart's type of *argyrocephala*, and this latter author's diagnostic characters of this species is as follows : « Nigricans, flavido hirta. Capite antice *argenteo*. Abdomine lateribus albo pilosis. Alis dimidiato fuscis (Tab. 20, fig. 6). Long. 3 L., ♂ ». Moreover Macquart's diagnosis of *argentifrons* is the following : « Nigra; alis fuscis; abdominis supra 4 1/2 et 6 segmentis argenteis, infra nigro argenteo; tantum sparsim piloso (Tab. III, fig. 11, *Anthrax*) ». Bezzi, on the other hand takes for granted the presence of the silvery scales on the abdomen of *C. argyrocephala* since, his note on this species (1925, *loc. cit.*, p. 176) reads as follows : « 1. *Chalcochiton argyrocephalus* Macq., 1840, Mariout en Mars; déjà signalé d'Egypte par Becker. Ces individus sont bien semblables à mon *bisalbifrons* de Cyrénaïque, qui se distingue seulement par les poils du dos du thorax plus foncés et par le dessin des ailes moins tranché. La cellule discoïdale ne présente pas d'appendice ». Mr. Austen (1937, *loc. cit.*, p. 50) on the other hand states that one female of *C. argyrocephala* Macq. from Jericho (2.IV.1923) (P. Buxton), except for some minor differences agrees well with Algerian examples of this species (I have said previously that as far as I am aware, the female of Macquart's species was unknown !). The same author also says that it would seem probable to him that *C. maroccana* (*Mulio maroccanus* Beck.), described

from a specimen from Tangier, is identical with this species (*C. argyrocephala*), the distribution of which outside Palestine is known to extend from Morocco to Egypt.

From the above, one may realise the great confusion which exists relating to this species. It is not common in Egypt; there are fifteen males and twenty two females in all, known so far, and all originating from the Mariout district (Aniria to Hammam), and from Ein Gedeirat (Kossayema, North Sinai). My dates extend from the middle of March to the end of April.

The distribution of this species extends from Asia Minor (Palestine to North Africa (Morocco).

***Cytherea aurea* F.**

Fabricius (1794), Entom. Syst., IV, 414, 2 *et* (1805), Syst. Anlt., 117, 4.; Coqueb. (1801), Illustr. Icon. Insect., 87, Tab. XX, f. 11; Meigen (1804), Klassif., I, 197, *et* (1820), Syst. Besch., II, 185, 5 (*Mulio*); Olivier (1811), Encycl. Méthod., VIII, 48, 4 (*Mulio*); Becker (1903), Zeitschr. f. syst. Hymen. u. Dipt., III, 25 *et* 95, 16; Bezzi (1925), Bull. Soc. Roy. Entom. Egypte, 1924, 174, 176, 2 (*Glossista*); Paramonow (1930), Mém. Acad. Sciences Ukraine, T. XV, livr. 3, 375; Engel (1937) in Lindner: Flieg. Pal. Region, 25, Bombyl., 328; Austen (1937), Bombyl. of Palestine, 51, 35.

SYNONYMY :

punctipennis Macq. (1840), Dipt. éxot., II, 1, 78, 1, Tab. XV, f. 4 (*Mulic*); Becker (1903), Zeitschr. f. syst. Hymen. u. Dipt., III, 96 (*Mulio*).

DIAGNOSIS :

A medium sized species, at once distinguished by the ochraceous tawny colour of the entire body, the brownish-yellow wings which possess about six brown (more or less dark) spots, and by the entirely pale yellow or cinnamon buff legs.

DESCRIPTION :

♂ : *Head* (Pl. XXXVI, figs. 519 and 520) covered with a fine yellowish-grey dust which gives it a more or less deep greyish-olive appearance; frons clothed with erect ochraceous tawny bristly pubescence and an undercoat of short adpressed scales of similar colour, but this vestiture is paler (amber yellow) below, on about the lower third, and usually absent on a small triangular space above, bordering the ocellar tubercle; face with a vestiture which is not unlike that of the frons, but usually of a pale yellow

colour, and the erect hairs are somewhat sparse about the centre and less bristly; the lower part of the head clothed with erect softer whitish pubescence; occiput with numerous ochraceous tawny scales on the sides, on the orbits and sparse short erect pubescence of rather paler yellow colour except above, behind the vertex where it is much longer; vertex bare on both sides of the ocellar tubercle and the latter bearing a dense tuft of long erect hairs which are light ochraceous tawny on the back part and almost all black on the front part (owing to the presence, usually, of a few yellow hairs intermixed); eyes, at the vertex, separated by a distance which is about twice as broad as the width of the two hind ocelli; proboscis dull blackish and from one and a half to twice the length of the mouth opening; palpi yellow or reddish-yellow with sparse minute erect yellowish pubescence; antennae reddish-yellow or brownish-yellow with the third segment obscure dark brown except about the base; often the first segment, which is clothed with sparse short yellow bristly hairs and a few similarly coloured scales above, is obscure brown except at the tip; second segment with a few minute yellow hairs about the tip above; third segment pyriform on rather more than the basal half and prolonged into a narrow point and less than one and a half times the length of the two first segments together.

Thorax dull greyish-black obscured by erect coarse (but not dense nor long) mostly ochraceous tawny pubescence and very dense adpressed similarly coloured elongate scales, but which are (the scales only) paler on certain regions, in the position of the two usual admedian longitudinal stripes on the dorsum, forming an obscure design with very ill-defined borders; many of the erect hairs scattered around the centre and above the lower margin of the disc are black or blackish-brown, albeit paler at the base and usually pale yellow or yellowish on the sides on the regions of the pre-alar bristles and on the postalar calli; all the numerous pre-alar bristles, the few (about two) supra-alar and the longer postalar bristles are yellow or brownish-yellow; pleurae deep greyish olive clothed with erect but not very dense pubescence which is shorter, pale yellowish on the lower parts, but longer and darker yellowish on the upper parts with the upturned bristles on the upper part of the mesopleura yellow; metapleura with a tuft of short soft yellowish hairs; scutellum clothed with dense adpressed ochraceous tawny scales on the disc but which are often yellowish about the centre and with an erect pubescence which is sparse on the dorsum, longer and coarser about the margin, and most of the hairs being reddish-brown, some blackish apically and with the few marginal bristles of the same colour.

Wings brownish-yellow on the basal two-thirds (approximately) with the outer border of the coloured area very irregular and very ill-defined; in addition, there are about six more or less apparent blackish-brown spots

or darker coloured small areas with ill-defined borders as follows : one on, and below the base of the stem of the fork R_2+3 and R_4+R_5 , one on the base of vein R_4 , one on the r-m cross-vein, one on vein Cu_1 , and one on the cross-vein forming the outer border of 1st M_2 cell; r-m cross-vein placed well after the middle, or on the distal third of 1st M_2 cell and the vein forming the lower border of the latter cell, with, or without a tiny appendix; 1st A cell not narrowed at the apex; alula moderately developed, brownish-yellow with a blackish margin and a short yellowish fringe; squama yellow with a thick yellow border and a slight yellowish fringe whose hairs are only a little longer than those of the alula; halteres reddish-yellow on the stem, with the knob cream buff.

Legs pale reddish-yellow or cinnamon buff except the coxae and the apex of the trochanters ventrally, blackish; coxae with long but not dense, erect, yellowish bristly hairs; femora with sparse long soft whitish pubescence and dense whitish broad scales; all the bristles on the femora and the spicules as well as the spurs on the tibiae and tarsi are black; middle and hind femora each, with two or three anteroventral bristles on the apical half and the hind pair with two or three shorter ones as well, near the tip above; tibiae with whitish adpressed scales; tarsi with minute sparse blackish pubescence; claws black but obscure dark brown or brownish-red at the base; pulvilli rudimentary, about one third the length of the claws and whitish.

Abdomen dull blackish obscured by a vestiture which consists of erect pale yellow pubescence, dense closely adpressed pale yellow and ochraceous tawny or ochraceous orange scales, and of very numerous, long erect and strong ochraceous tawny or tawny bristles on the lower borders of the segments and which gives the abdomen a characteristic colour and a transverse banded as well as serrate effect; the erect pale yellow pubescence is longer and more dense on the sides, particularly near the base and somewhat shorter and much more sparse on the dorsum; the dense scales are pale on the dorsum and longer and much darker (ochraceous tawny or ochraceous orange) on the lower borders of the second to fourth segments, while the scaly covering on the rest of the segments (fifth to seventh) is usually of a uniform ochraceous tawny colour; moreover, the bristles on the lower borders of the segments are always quite absent in the centre (the middle third or fourth); venter deep greyish-olive, sometimes with the lower borders of the sternites obscure brownish-yellow and clothed with sparse erect long pubescence as well as with equally sparse scales which are all of a uniform ochraceous tawny colour; hypopygium brownish-red with very short erect reddish-yellow (pale) pubescence.

♀ : Extremely like the male except that the transverse banded and

serrate effect on the abdomen is more evident mainly owing to the more numerous and stronger bristles on the lower borders of the segments and usually also owing to the much darker colour of these bristles (often dark reddish-brown).

Head (Pl. XXXVI, figs. 521 and 522); frons at the vertex not quite twice as broad as that of the male because the eyes are separated by a distance which is hardly three times the distance between the hind ocelli; the vestiture of the head is very similar to that of the male except that the erect pubescence is shorter and more bristly as usual, and there are some black or at least blackish brown hairs, albeit paler at the base, on each side of the upper part of the frons ⁽²⁴⁾.

♂, ♀ Length of body : 5.7-9.6 mm., of proboscis : 1.2-1.7 mm.; breadth (with wings expanded) : 10.5-17.5 mm.

C. aurea is quite rare in Egypt and its distribution is so far restricted to the Mariout District. During the last twenty three years I have captured only six males and six females from Burg el-Arab and Abu Mina (Mariout) between the 11th of April and the 2nd of May; these are the only Egyptian specimens known so far. The flies are very difficult to see or catch because they hover in barley fields which are fully ripe or even harvested during April, and its ochraceous colour is almost identical to that of the background.

The range of this species extends from Palestine to Algeria.

***Cytherea barbara* SACK.**

Sack (1906), *Verh. zool-bot. Ges. Wien*, LVI, 469 (*Mulio*); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 178, 9 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 376; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 337 (*fenestrata-barbara*); Austen (1937), *Bombyl. of Palestine*, 48, 30, f. 13.

DIAGNOSIS :

A large (the largest of the genus, in Egypt) black and whitish species, with entirely blackish legs distinguished by the absence of black hairs on the face, the pale yellowish or brownish-red (never black) bristles on thorax and abdomen, the dark brown or blackish-brown halteres whose knob only is more or less extensively pale brown (olive buff to buffy brown), and by the characteristic design of the brown coloured area on the basal two-thirds of the wings.

⁽²⁴⁾ Mr. Austen (1937, *loc. cit.*, p. 51) states that in Palestine specimens these black hairs on both sides of the upper part of the frons, are found in both sexes (two males and two females) but in the six males known from Egypt, the black tuft of hairs is confined to the front part (half or two-thirds) of the ocellar tubercle.

DESCRIPTION :

♂ : *Head* (Pl. XXXVI, figs. 523 and 524) dull black; frons clothed on the upper third or half with erect coarse (but not very dense or long) black pubescence only, but on the rest with pure white or pale yellowish erect hairs and very dense scales of the same colour; face bearing a similar vestiture as the lower half of the frons except that the hairs are softer, somewhat shorter and very sparse on the middle third; occiput with numerous white or ochraceous tawny scales on the orbits and with short soft whitish or yellowish hairs except above, behind the vertex where they are longer but also pale; vertex quite bare on each side of the ocellar tubercle and the latter bearing a tuft of long erect hairs which are pale yellowish-grey or whitish on the back part and exclusively black and coarser on the front part (the ocellar triangle); eyes with the upper facets not enlarged, and separated at the vertex by a distance which is about twice as broad as the width of the two hind ocelli; proboscis dull black and from one and a half times to twice as long as the head (including the antennae) or almost as long as the front tibia and tarsi together; palpi blackish with short erect black hairs; antennae black; first segment with short erect pubescence which is usually very short, all blackish above and somewhat longer and whitish beneath, but sometimes this pubescence is whitish all over with some whitish scales above or occasionally all black; second segment with minute erect black hairs all over; third segment broad lanceolate or elongate narrow conical and not quite one and a half times the length of the two first segments together.

Thorax dull black but appearing of a dull blackish-grey colour owing to its characteristic vestiture consisting of soft erect short and by no means dense pubescence which is whitish or yellowish on the upper part and sides of the disc and blackish elsewhere, and of a sparse (often very) undercoat of very short adpressed pale yellow or ochraceous tawny scaly hairs; usually the dorsum shows no design but occasionally the hairs and scaly hairs on the regions of the two admedian longitudinal stripes, on the upper third at most, are paler than elsewhere and form an obscure, ill-defined design; the numerous pre-alar, the two or three supra alar and the long postalar are well developed, strong and all pale yellowish or tawny; pleurae blackish-grey with sparse erect whitish pubescence which is longer, more dense and often yellowish on the upper part of the mesopleura and with sparse pure white elongate scales as well; upper front part of mesopleura with a tuft of up-turned bristles of the same colour as those of the chaetotactic bristles above; metapleura with a sparse tuft of erect whitish soft hairs; scutellum with whitish soft pubescence about the base and sparse erect mixed yellowish and blackish hairs on the dorsum; in addition, the scutellum bears rather dense

adpressed scales which are similar in colour to the scaly hairs on the thoracic dorsum and numerous long pale yellow or tawny marginal bristles.

Wings coloured pale brownish-yellow to blackish-brown on the basal two-thirds but with this colour distinctly darker about the base, on the upper border, and about the distal third of this coloured area, so that the middle third of this coloured area is always paler; the outer border of the latter is irregular, and may or may not reach all the way down (obliquely, from the apex of Sc cell) to the tip of 1st A cell; often the 1st M_2 cell is paler about the centre and the r-m cross-vein as well as vein Cu_1 are darker on both sides, as if bearing each, a dark spot; sometimes an ill-defined darker spot also occurs below the base of the fork $R_2 +_3$ and $R_4 +_5$, in M cell, and a rounded or triangular whitish (almost hyaline) spot is frequently found at, and touching the vein forming the upper border of the 2nd M cell (the middle spot or « window »); r-m cross vein placed after the middle of 1st M_2 cell and occasionally a second cross-vein is emitted in R cell, towards the distal third or fourth of 1st M_2 cell; the vein forming the lower border of 1st M_2 cell often without an appendix, but quite frequently with a tiny one, and occasionally with a rather long appendix; 1st A cell narrowed at the apex; alula fairly well developed, yellowish-brown, with a blackish margin and a short yellowish-brown fringe; squamae brownish-yellow with a thick but hardly darker margin and a whitish fringe which is not long and not dense; halteres blackish-brown on the stem and the knob entirely cream buff or more or less extensively dark brown about the base and pale yellowish-brown at the apex.

Legs usually entirely blackish but sometimes the tibiae reddish-brown, and occasionally the apex of the femora, the tibiae and the middle, as well as the hind metatarsi testaceous; the erect long but not dense pubescence on the coxae is yellowish or whitish and the sparser, shorter erect hairs on the ventral or posteroventral surface of the basal half or two-thirds of the femora usually mostly blackish; all the bristles, spicules and spurs are black; claws black but obscure dark reddish-brown at the base; pulvilli atrophied, not more than one fourth the length of the claws and whitish.

Abdomen dull black, obscured (in unrubbed specimens) by more or less dense long soft erect pubescence of a pure white or yellowish-white colour, and an undercoat of very short adpressed whitish or pale yellow scaly hairs which are usually rather evenly distributed over the dorsum and do not form any design, although the yellow scaly hairs or scales show a tendency to be crowded on, and about the lower borders of the segments; the numerous long bristles on the lower borders of the segments are whitish, pale yellow, pale brown or tawny and as a rule, only the shorter ones at the extreme apex (surrounding the genitalia) are black; venter blackish

Abou Mina), Mersa Matrouh and Solloum (Tripoli frontier). Three of the males and four females were collected in Southern Sinai at an altitude of 1700-1800 metres, in Wadi el-Legaâ. I have also one female collected by Mohamed Tewfik Effendi at Wadi Wirak (North Galala). My records extend from the beginning of April to the middle of May.

This species also occurs in Tunis, where the type was obtained, and in Palestine; Engel records the occurrence of *C. fenestrata* Lw. from Turkestan, Syria (Beirut) and Jerusalem.

***Cytherea maroccana* BECK.**

Becker (1903), *Zeitschr. f. syst. Hymen. u. Dipt.*, III, 28, et 89, 6 (*Mulio*) et (1906), VI, 153, 84 (*Mulio*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 395; Engel (1937) in Lindner *Flieg. Pal. Region*, 25, Bombyl., 341.

SYNONYMY :

discipes Beck. (1915); Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 177, 8 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 385.

nitidapex Bez. (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 177, 7 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 398.

DIAGNOSIS :

A small to medium sized light greyish-olive or greyish-olive species rather resembling *alexandrina* but distinguished from it by the erect hairs on the upper part of the frons being always black, the coloured (brownish-yellow or blackish-brown) area usually more evenly and uniformly distributed on the basal two-thirds of the wings, and by the design on the dorsum of the thorax which, in the male is almost inexistant, and in the female somewhat like that in *alexandrina* but with the paler stripes always less apparent (owing to being at most whitish (yellow)).

DESCRIPTION :

♂ : *Head* (Pl. XXXVI, figs. 527 and 528) light gull grey; frons clothed with erect pubescence which is usually all black on the upper two-thirds and yellowish or white on the lower third, where it is also less erect, and with short adpressed pure white scales which are dense on the lower third and along the inner eye margins but sparse elsewhere; occasionally the erect hairs are blackish on the upper third of the frons only, and whitish below; face with a vestiture very similar to that of *alexandrina* except that the erect pubescence is even sparser, especially about the middle and usually

all pure white (occasionally, at most yellowish); on the lower part of the head the pubescence is erect, soft, not long and white; occiput with numerous white or yellowish scales on the orbits and with short erect white or greyish pubescence except above, behind the vertex where it is much longer but also pale; ocellar tubercle with a tuft of erect pubescence which is all whitish or yellowish, but usually a few of the hairs on the anterior angle (immediately behind the front ocellus) are black; eyes separated by a distance which is about three times as broad as the distance between the two hind ocelli; proboscis dull black and about as long as the head (including the antennae) or as long as the front tarsi; palpi blackish with some sparse minute pale hairs; antennae black; first segment with short erect whitish pubescence all over or with the pubescence blackish above and whitish below and with some whitish scales dorsally; second segment with minute sparse whitish or blackish hairs above; third segment elongate narrow conical and quite one and a half times the length of the two first segments together.

Thorax dull greyish-black, clothed with sparse erect not long pubescence; which is whitish on the anterior part and sides (and somewhat longer, as usual) but mostly blackish and brownish on the dorsum and with mostly whitish and some yellow or olive ochre scales but which do not form well apparent stripes as in *alexandrina*, owing to these scales being somewhat mixed or less evenly scattered (sparsely) all over; all the bristles are yellow, reddish-yellow or brownish-red; pleurae greyish-black, clothed with pure white elongate scales and erect pure white pubescence which is accompanied by many yellow bristles on the upper part of the mesopleura; metapleura with erect white hairs but which are not dense or long; scutellum with very sparse erect pale pubescence (usually rubbed off) and much more numerous orange yellow or yellowish scales on the dorsum, leaving the apex often bare and shining (as if rubbed off); marginal scutellar bristles numerous, long, rather strong and yellow or reddish-brown.

Wings with the proximal two-thirds uniformly and rather evenly coloured brownish-yellow or blackish-brown but sometimes this coloured area is somewhat paler about the base and fore border and often also possessing the pale yellowish (almost hyaline) « window » on the upper border of 2nd M cell; frequently also the distal third of the brown area is of a darker colour and is immediately preceded by a paler area, with a small blackish spot in R cell, above the « window »; r-m cross-vein placed just after, or well after the middle of 1st M₂ cell, and the vein forming the lower border of this cell usually without an appendix; 1st A cell not narrowed at the apex; alula small brownish-black, with a black margin and a short yellow or brown fringe; squamae yellow with a thick yellow margin and a short slight whitish fringe; halteres reddish-brown or brownish-yellow on

the stem which is obscured towards the base and with the knob cream colour.

Legs blackish except the tibiae and tarsi varying from obscure dark reddish-brown (almost blackish) to cinnamon buff, and in which case usually with the apex of the tibiae and apical tarsal segments blackish; coxae and posteroventral surface of proximal two-thirds of femora with erect whitish pubescence; scales covering the femora and tibiae all pure white or white beneath and yellowish or yellow dorsally; all the bristles, spicules and spurs are black except one or two of the spurs on the apex of the hind tibiae sometimes yellow; claws black except at the base reddish-brown; pulvilli atrophied, less than half the length of the claws and yellowish.

Abdomen dull black clothed with long erect white pubescence which is fairly dense on the sides only as usual, and with dense closely adpressed scales which are mostly yellow ochre and some whitish, and the latter roughly situated about the upper borders or upper thirds of the segments, but never contrasted enough so as to form a definite or distinct design; lower margins of all the segments each, with a row of long pale yellow or reddish-brown bristles, but often these rows consist of bristly hairs and occasionally a few of these are black; venter greyish-black with sparse long erect white pubescence and more dense pure white scales except towards the apex where they (the scales) are often yellowish; hypopygium blackish with sparse short mixed black, reddish and whitish erect hairs.

♀: Extremely like the male.

Head (Pl. XXXVI, figs. 529 and 530); frons at the vertex almost half as broad as the head (distinctly more than one third), because the eyes are separated by a distance which is more than three times the distance between the hind ocelli; upper half or two-thirds of frons usually shining black and clothed with erect black pubescence and with adpressed scales which are mostly yellow ochre and some whitish intermixed, while the rest of the frons with yellowish or whitish pubescence and dense white scales; face with a vestiture very similar to that of the male; ocellar tubercle with the tuft of erect hairs all yellow or black on the front part and yellow or yellowish on the back part.

Ovipositor blackish with short stiff black hairs and some shorter softer erect pale ones.

♂, ♀ Length of body : 5.5-11 mm., of proboscis : 2-3.8 mm.; breadth (with wings expanded) : 10-21.3 mm.

This is one of the species which appears to be devoid of any constant distinctive character as, from the numerous specimens in our Egyptian collections it seems to combine certain characters of *alexandrina* Beck, with some of *thyridophora* Bez. I have eleven females collected at Ein Gedeirat

(North Sinai) in which the frons is by no means shining, the dorsum of the thorax showing three pale longitudinal stripes, the abdomen with paler distinct transverse bands, and the design of the wings almost identical with that of *thyridophora*. Consequently I feel I am unable for the present to place these specimens under any one of the three above mentioned names ! I think that there can be no doubt as to the correct synonymy of *discipes* Beck. and *nitidapex* (*Glossista*) Bez. which Engel (1937, *loc. cit.*, p. 341) has pointed out for the first time. In fact Bezzi's description (1925, *loc. cit.*, p. 177) which is far too brief, almost admits in itself such a synonymy : « *nitidapex* n.sp. ♂ ♀. Très proche de la précédente (*Glossista alexandrina*), mais distincte pour avoir la moitié postérieure de l'écusson d'un noir très luisant et les tibias plus noirs. Longueur du corps, 6-7 mm. ; de l'aile, 6-8 mm. Wadi Hoff et Wadi Garawi en Avril. Elle paraît être semblable au *maroccana* Beck., mais elle en diffère par le front entièrement opaque dans les deux sexes ».

I am convinced that the condition of the apical half, apex or hind border of the scutellum being « dull or shining », a character of distinction which has been made use of by previous authors is misleading and of no value, because such a so-called character depends entirely on the condition of the specimens (rubbed or unrubbed), and should certainly be rejected.

C. maroccana is not uncommon in Egypt. I have collected it in all the Wadis of the Eastern Desert near Cairo and Helouan, W. Digla, W. Gendali, W. Hoff, W. Dar el-Maskhara, W. Um Elek, W. Garawi, W. Gharba and W. Rishrash. I have also captured numerous specimens of both sexes at Ein Gedeirat (Kosseyema, North-Sinai) and at Wadi El Rabba and Wadi El-Legaâ (South Sinai, altitude 1700-1800 metres).

This species was originally described from one male and two females originating from Biskra and Mr. Paramonow records one female caught by Mr. Schlüter at Tanger and in Mr. Th. Pleske's collection. Becker's female (*discipes*) was obtained from Tunis (Oued el-Meridj). It very probably also occurs in Palestine but under another name.

Cytherea nucleorum BECK.

Becker (1902), *Mitteil. Zool. Mus. Berlin*, II, 31, 41 (*Mulio*) et (1903), *Zeitschr. f. system. Hymen. u. Dipt.*, III, 90 (*Mulio*) ; Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 177, 4 (*Glossista*) ; Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 398 ; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, *Bombyl.*, 343, Tab. V, f. 65 ; Austen (1937), *Bombyl. of Palestine*, 46, 51, 34.

DIAGNOSIS :

A small to medium sized dark buffy brown or olive brown species, with

very numerous long and strong abdominal bristles mostly black and some yellow, at once distinguished from all the other species by the characteristically mottled wings.

DESCRIPTION :

♂ : *Head* (Pl. XXXVII, figs. 531 and 532) brownish-yellow or blackish, dull; frons clothed with erect black almost bristly pubescence on rather more than the upper two-thirds and with sparse elongate scales all over which are ochraceous and rather crowded on the inner orbits but sparser, more elongate and usually paler (whitish) towards the middle; the erect moderately dense pubescence is usually mixed, whitish or yellowish and black, the latter hairs being distinctly coarser, bristly, particularly so around the mouth opening and usually almost absent on all the middle portion (above, between and below the base of the antennae); in addition, the face bears elongate scales which are distinctly broader, mostly yellow and dense on the middle portion, and much sparser, whitish and narrower on the sides; the pubescence on the lower side of the head is short erect, mixed black and yellowish or all pale yellowish; occiput with numerous ochraceous scales on the orbits and with short erect usually mixed black and pale yellowish pubescence, except for a very few longer yellowish hairs behind the vertex; ocellar tubercle large, elevated, with a tuft of erect stiff hairs which are mostly black except a few yellowish ones on the back part and with a few scattered ochraceous tawny scales: eyes separated at the vertex by a distance which is about twice the distance between the two hind ocelli; proboscis dull black and varying in length from shorter, or a little longer than, the length of the head (including the antennae); palpi blackish with a row of stiff longish reddish-yellow and brownish hairs ventrally and a few shorter black ones at the tip; antennae black but often the base of the third segment obscure reddish- or yellowish- brown; first segment with short black bristly hairs all over and some whitish or yellowish scales as well; second segment with some very short or minute black stiff hairs above; third segment narrow elongate conical and rather more than one and a half times the length of the two first segments together.

Thorax dull black clothed with sparse short erect black pubescence which is a little longer and bristly on the sides and with an undercoat of sparse adpressed whitish broad scales as well as adpressed ochraceous scaly hairs; these whitish scales and yellow scaly hairs are somewhat mixed, although the former show a feeble tendency to form two or three longitudinal stripes on the dorsum; the numerous strong chaetotactic bristles on the sides of the disc are mixed, some black and some brownish-red or brownish-yellow, and sometimes the former coloured bristles are more numerous than the latter but sometimes the contrary occurs; pleurae with mixed yellowish and

black pubescence which is very sparse and short on all the lower parts but longer and less sparse on the upper parts with the bristles on the upper part of the mesopleura yellow; in addition to the pubescence, the pleurae also bear some whitish elongate scaly hairs occurring in one or two bundles here and there; metapleura with a thin tuft of erect and not long yellowish hairs; scutellum with sparse erect black pubescence and with adpressed elongate scales similar in colour to those on the thorax but rather more numerous, mainly ochraceous and some whitish about the centre; marginal scutellar bristles numerous and also varying in colour, like the thoracic ones.

Wings characteristically mottled, in addition to a dark brown area occupying the greater part of the basal two-thirds which is interrupted towards the middle by a luteous area; all the cells of the apical and posterior margins, as well as 1st M_2 cell, are pale yellow or hyaline with dark (blackish-grey) centres which are often broken up by pale interruptions, particularly in 2nd A and 1st A cells; and there are about six small much darker areas forming blackish spots, one (the largest) below the base of the stem of the fork R_2+3 and R_4+R_5 in R cell (and above the « window »), one on the base of vein R_2+3 , one (the least conspicuous), on the base of vein R_4 , one on the r-m cross-vein, one on the cross-vein like Cu_1 vein, and the sixth on the base of the vein forming the lower border of 1st M_2 cell; r-m cross-vein usually placed after, but often on, and occasionally just before, the middle of 1st M_2 cell; vein forming the lower border of 1st M_2 cell rarely with an appendix emitted from near its base, in its cell, but occasionally with an appendix emitted from near its apex in 1st M_2 cell and in addition with a second appendix a little after the middle in Cu_1 cell; vein R_2+3 also occasionally emitting a short appendix towards, the middle in R_1 cell or in R_3 cell; 1st A cell not narrowed at the apex; alula moderately developed, fuscous, with a black margin and a very short brown fringe; squamae luteous with a thick yellow margin and a short and not dense yellow or pale yellow fringe; halteres with the stem reddish-brown and the knob very pale, whitish-yellow or cream colour.

Legs with the coxae, trochanters and the femora black except the extreme apex of the latter reddish-brown, and all the tibiae as well as the tarsi pale brownish-yellow although the tibiae are usually obscured about the apex, dorsally; coxae with sparse longish erect mixed black and brownish-yellow bristly hairs; femora with sparse erect pubescence also mixed, black and yellowish or whitish; scales on femora and tibiae yellowish or whitish-yellow; all the bristles, spicules and spurs black; front femora with one short anteroventral and one or three posteroventral bristles near the apex; middle femora with three or four anteroventral bristles on the distal half; hind femora with an anteroventral row of about

five long bristles on the apical half, about three small posteroventral ones on the apical third and three or four strong bristles near the apex above; spicules on middle and hind tibiae long and fairly strong; tarsi with minute pale yellow scales above and with minute reddish hairs beneath in addition to the usual small black bristles on the soles; claws black except at the base obscure reddish-brown; pulvilli atrophied, about one fourth the length of the claws and pale yellowish.

Abdomen dull black obscured (in unrubbed specimens) by very dense adpressed ochraceous tawny elongate scales except on the upper border of the second segment where the scales are usually whitish (and as a rule a few whitish scales also occur here and there over the middle of the other segments), and long erect chamois pubescence which is somewhat dense only on the sides of the two first segments (particularly the first or basal) and often whitish on the sides of the third and fourth segments, although on the sides of the second segment, towards the middle a tuft of black hairs usually occurs and a similar but much thinner tuft is present also in the same position, on the third segment immediately below the whitish erect hairs; the numerous long and strong bristles on the lower borders of the segments (in two or three transverse rows) are usually mixed, some black and some brownish-yellow or deep chamois or yellow, and the proportion of the black bristles is always greater towards the apex; not unfrequently most of these bristles are black; venter black, somewhat shining with the lower borders of the sternites obscure dark Isabella colour, bearing very sparse and very long soft pale yellowish-grey hairs and very sparse whitish scales but which become more numerous and yellow towards the apex; hypopygium blackish with short erect but sparse reddish hairs.

♀: Very much like the male except that it is usually somewhat paler, owing to the proportion of the whitish scales on all the body (in comparison with the yellow or ochraceous tawny scales) being much larger.

Head (Pl. XXXVII, figs. 533 and 534); frons at the vertex more than twice as broad as in the male because the eyes are separated by a distance which is almost four times the distance between the two hind ocelli; the erect pubescence on the frons is black on the upper third or half and yellow or whitish below; face with the erect (sparse) pubescence all white but the weak bristles on the upper and side margins of the mouth are all yellowish or the ones in the centre (of the upper margin) black and the rest yellowish; the scales on the face are as in the male.

Ovipositor black with short erect black hairs.

♂, ♀ Length of body : 6-10.3 mm., of proboscis : 1.3-3.6 mm.; breadth (with wings expanded) : 11.5-19.5 mm.

This species, which is one of the most readily recognizable among the

representative of the genus owing to the characteristic colour of its body and the curiously mottled wings is not rare, but its distribution in Egypt seems to be restricted to the Mariout district and the Northern Sinai (Ein Gedeirat). I have captured four males and five females from Burg el-Arab and four males and twelve females at Abu Mina (15 Kilometres South East of Behig). My assistant Shafik Mostafa Effendi caught a single female at Ein Gedeirat (Kosseyema). My dates extend from March 25th to April 26th.

Paramonow (1930, *loc. cit.*, p. 398) states that there is a specimen of this species in the Berlin Museum collections which was brought back from Egypt by Ehrenberg. Both sexes were taken by the author of this species at Haifa « on flowery sand dunes on the sea-shore in April », and Austen records numerous individuals of both sexes from many localities in Palestine.

As far as I am aware, *C. nucleorum* has not been found in other countries besides Egypt and Palestine.

***Cytherea thyridophora* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 175, 178, 10 (*Glossista*); Paramonow (1930), *Mém. Acad. Sciences Ukraine*, T. XV, livr. 3, 409; Engel (1937) in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 347.

DIAGNOSIS :

A medium sized light buffy brown species, with the sparse, short, adpressed, mixed whitish and ochraceous orange scales and scaly hairs on the dorsum of the thorax not forming any design, the legs almost entirely black except sometimes the tarsi obscure reddish-brown, distinguished by the more or less dark yellowish-brown coloured proximal two-thirds of the wings which possesses a pale yellow median window-like spot extending from the costa down to the lower border of 1st M_2 cell.

DESCRIPTION :

♂ : *Head* (Pl. XXXVII, figs. 535 and 536) dull greyish-black or brownish-black; frons with the fairly dense erect pubescence almost entirely black all over except occasionally a few of the hairs on the lower border yellow or brownish-red or even partly so; in addition, the frons bears sparse ochraceous orange scales on the upper third but below, these scales become more numerous, whitish or pure white and very elongate, and the ones about the middle of the lower third almost as long as the hairs of the erect pubescence; face with the erect pubescence sparse, black or blackish with some dark reddish-brown hairs on the middle third intermixed, as well as on the sides of the upper part (as if the black hairs on the frons extend down on the

sides) and these black hairs of this area are immediately followed by reddish-brown hairs which gradually become paler downwards (on the sides), and, on the rest of the face the pubescence is sub-erect, more dense and whitish; the white or whitish scales on the face are fairly dense, distinctly more elongate about the middle third (where the sparse erect pubescence is blackish) and often many of those towards the centre are yellowish or pale yellow; the erect hairs bordering the anterior margin of the mouth are bristly, all black or some black and some whitish, or mostly whitish and one or two only black; all the lower side of the head with erect soft white pubescence; occiput with numerous white or yellowish scales on the orbits and with short erect pale greyish-yellow pubescence except for a few black hairs near the upper eye margins and for some much longer mostly yellowish-grey ones above; ocellar tubercle with a large tuft of long erect hairs which are all black on the anterior two-thirds and yellowish behind; eyes separated at the vertex by a distance which is almost as broad as three times the distance between the two hind ocelli; proboscis dull black and as long as the head (including the antennae); palpi brownish-yellow or cinnamon brown with minute sparse erect reddish hairs about the apex; antennae black; first segment with short erect black pubescence which is longer below, and with some whitish scales; second segment with very short sparse erect mostly black pubescence; third segment narrow elongate conical and about one and a half times the length of the two first segments together.

Thorax dull black clothed with erect not dense pubescence which is yellowish on the anterior margin but almost all blackish on the rest of the disc, and with sparse short adpressed mixed whitish scales and ochraceous orange or yellow scaly hairs which do not form any definite design; all the bristles on the anterior border and sides are brownish-yellow or reddish-brown; pleurae greyish-black clothed with sparse erect whitish pubescence and some pure white elongate scaly hairs on the lower parts and with much longer more dense pale brownish pubescence on the upper parts, which on the upper front part of the mesopleura is accompanied by the usual tuft of pale brownish bristles; metapleura with a thin tuft of elongate yellowish hairs; scutellum dull black with a similar vestiture as that of the thorax and with numerous reddish-yellow marginal bristles.

Wings more or less dark yellowish-brown on the proximal two-thirds and characterized by this darker area being interrupted by a fairly large median window-like paler (yellowish) spot which extends from the costa down to the base of 1st M_2 cell; usually also this brown area is darkest about the stem and base of the fork R_2+3 and R_4+R_5 , as well as on the outer third of the brown area, and pale yellow on the lower part of the base of the wing and on the proximal third of 1st A cell; the pale almost hyaline

« window » or spot in the upper margin of 2nd M cell is very variable in shape, as it may extend in a long narrow line beneath the vein forming the upper border of the cell, or in a very narrow line expanding into a large oval spot near the apex; often, when the coloured area is paler (brownish-yellow), in addition to the paler « window-like » median spot the brownish colour is much deeper (almost blackish) on the r-m cross-vein, on the deeply bent portion of the vein forming the lower border of 1st M_2 cell, on vein Cu_1 and on an elongate oval darker (blackish) small area in R cell, below the base of the fork R_2+3 and R_4+R_5 , giving the impression somewhat of four darker spots; r-m cross-vein usually placed just after, but occasionally on the middle of 1st M_2 cell; vein forming the lower border of 1st M_2 cell usually without, but rarely with a tiny appendix in the above cell; 1st A cell not narrowed at the apex; alula infuscated, moderately developed, with a black margin and a short brown fringe; squamae yellow with a thick similarly coloured margin and a slight longish white fringe; halteres with the stem brownish-yellow, somewhat darker at the base, much paler at the tip and with a yellowish-white knob.

Legs entirely black but often with the tarsi obscure dark reddish-brown, and densely covered with adpressed scales which are white beneath and usually yellowish dorsally; coxae with whitish and brownish-red erect but not dense bristly hairs; the sparse erect pubescence on the basal half (approximately) of the ventral and posteroventral side of the femora is mainly whitish and with a very few black hairs intermixed; all the bristles, spicules and spurs are black and of about the same strength and number as in *alexandrina* and *maroccana*; claws black but obscure reddish-brown at the base; pulvilli atrophied, about one fourth the length of the claws and yellowish.

Abdomen dull black clothed with long erect whitish or dirty yellowish-white pubescence which is fairly dense on the sides except for a few black hairs on the sides of the lower borders of the second and third segments, and with an undercoat of adpressed shining blackish (as if greasy) scales which, towards the centre of the lower borders and on the sides of the segments (except the two first) are whitish and very elongate (almost half as long as the erect hairs); on the three apical segments these long white scaly hairs are much more numerous and quite dense all over except about the centre where they are almost absent; hind marginal bristles long, in one or two rows and all brownish-yellow except towards the apex many of the bristles are black; venter greyish-black, somewhat shining with the lower borders of the sternites except the two or three apical ones buffy brown and clothed with very long sparse whitish soft pubescence and pure white elongate scales which are sparse and decumbent except on the sides where they are dense, tufted, almost erect and much longer; hypopygium dull black with very short erect mixed reddish and blackish hairs,

♀ : Very similar to the male but the general colour of the entire body is somewhat paler owing to a greater proportion of whitish scales which on the abdomen usually occur also on the upper fourth of the second to fourth segments, showing a marked tendency to form a transverse banded appearance, and the coloured area of the wings usually paler.

Head (Pl. XXXVII, figs. 537 and 538) dull greyish-black; frons at the vertex about half the width of the head or quite twice as broad as in the male because the eyes are separated by a distance which is quite four times the distance between the two hind ocelli; frons clothed with more or less dense erect bristly pubescence which is usually all black on the upper third or half but sometimes some of the hairs on the sides above are yellow and occasionally the black hairs extend down well beyond the upper half (in the middle), and yellowish or whitish elsewhere; the scales on the frons are sparse, short, scattered and usually ochraceous orange on the vertex and upper border (although often whitish), more numerous very elongate, almost erect and whitish in the centre, and somewhat shorter, decumbent and often yellowish on the sides; the vestiture of the face is not unlike that of the male but coarser and the few erect black bristly hairs bordering the mouth margin above are often replaced by yellowish ones.

Ovipositor blackish with dense erect longish black bristly pubescence.

♂, ♀ Length of body : 6.5-11.5 mm., of proboscis : 1.5-3.7 mm.; breadth (with wings expanded) : 13.2-19.5 mm.

This species is fairly common in Egypt, but in a rather restricted locality, the Mariout district; I have long series of both sexes which I have collected at Amria, Ikingi, Burg el-Arab and at Hammam between the middle of March to the beginning of May. There is no other record of *C. thyridophora* from any other locality in Egypt, as the female specimen mentioned by Engel (1937, *loc. cit.*, p. 348) from my collection and originating from Wadi Zohleiga (25-29. III. 1925) is a typical *C. wadensis nov. spec.*

Bezzi compares his species with *fenestrulata* Lw. and *fenestrata* Lw. from Turkestan, and to which he states it is very closely allied. The same author also says, concerning this species, that it appears to be distributed over North Africa as he possesses it also from the Isle of Djerba. It is surprising that *C. thyridophora* has not been recorded from Palestine.

***Cytherea wadensis* NOV. SPEC.**

DIAGNOSIS :

A medium sized species, greyish-black (male) or dark greyish-olive (female), closely allied to *maroccana*, *alexandrina* and *thyridophora* but distinguished by the undercoat on the thorax and abdomen which in both sexes is formed of short white and yellow scaly hairs (practically no true scales).

DESCRIPTION :

♂: *Head* (Pl. XXXVII, figs. 539 and 540) pale or light gull grey, and with a vestiture very much resembling that of *thyridophora* owing to the distribution of the erect black hairs on the frons and face being almost identical, but the erect white pubescence and the scales, as well as the elongate scales, are usually pure white all over; proboscis dull black and quite one and a half times the length of the head (including the antennae); palpi very short, obscure blackish-brown and with sparse minute erect brownish hairs; antennae black, of the same shape and length as in the preceding species and with the erect short pubescence on the first segment also black, as well as with some white scales intermixed.

Thorax dull black clothed with a vestiture which is almost identical with that of *thyridophora* except that the pure white or white (some) and yellow short hairs of the undercoat are hardly scaly; bristles as numerous, as strong, and of the same colour as in *thyridophora*; pleurae blackish-grey clothed with sparse erect white pubescence which is much longer on the upper parts with the usual upturned bristles on the mesopleura yellowish or brownish and without scaly hairs; metapleura with a tuft of unusually long and dense erect white hairs; scutellum with a similar vestiture on the disc as that of the dorsum of the thorax but with numerous long erect mixed whitish and yellowish hairs on the entire border intermingled with the almost as numerous marginal and premarginal brownish-red bristles.

Wings from brownish-yellow to dark yellowish-brown on the proximal two-thirds and only sometimes this darker area is very inconspicuously paler towards its middle (on the apical half of the Sc cell, the basal fourth of R_s cell and the apical half of R cell) and in which case, all the lower border of the basal half of the wing is also paler; the pale or hyaline « window » or spot on the upper border of 2nd M cell present and almost as variable as in *thyridophora*; position of r-m cross-vein variable, being placed immediately before, on, or just after the middle of 1st M_2 cell; vein forming the lower border of 1st M_2 cell almost always without an appendix; 1st A cell very feebly narrowed at the apex; alula pale smoky grey with a black margin and a short dark brown fringe; squamae yellowish with a thick pale yellow margin and slight longish white fringe; halteres with the stem yellowish- or reddish-brown and the knob yellowish-white.

Legs as in *thyridophora* but the tarsi are usually entirely blackish, the pulvilli less atrophied being about half as long as the claws and the latter more extensively reddish-yellow about the base.

Abdomen of the same colour and clothed with a similar vestiture as in the preceding species but the erect pubescence is of a more pure white colour, the black hairs are totally absent and the undercoat is, as stated previously

less scaly; hind marginal bristles as in *thyridophora* but the black bristles about the apex are rather less numerous; venter as in the preceding species, with a similar pubescence but the short white scales including the longer ones on the sides much less dense (rather sparse); hypopygium similar in shape and colour to, and with a similar pubescence as that of *thyridophora*.

♀ : Not unlike the male but more plump and of a general dark greyish olive colour owing to the undercoat of whitish and yellow scaly hairs and short hairs much more dense and hence obscuring the black ground colour, and the coloured area of the wings usually paler.

Head (Pl. XXXVII, figs. 541 and 542) blackish-grey; the erect pubescence on the upper half (approximately) of the frons is black and followed below by reddish-brown or brownish-yellow erect bristly hairs; the elongate scales are dense and whitish on the lower third of the frons but sparse elsewhere except on the sides where they are shorter and ochraceous orange; face with a vestiture formed of dense white elongate scales and rather dense white erect pubescence except on the middle third where it consists (the pubescence) of sparse reddish-yellow bristly hairs, almost weak bristles and occasionally two or three of which may be dark brown, almost blackish.

Ovipositor blackish, clothed above with white scales and with short erect black pubescence.

♂, ♀ Length of body : 6-12 mm., of proboscis : 2.6-3.8 mm.; breadth (with wings expanded) : 11-21.5 mm.

This species is apparently endemic to the Eastern Desert fauna of Egypt where it is fairly common. I possess large series of both sexes collected in many of the Wadis South East of Cairo and Helouan, W. Hoff, W. Um Elek, W. Garawi, W. Zohleiga, W. Silly, and I have captured numerous specimens with my assistant Mohamed Tewfik Effendi at W. Wirak and W. Agramiah in the North Galala Plateau. I caught one couple at Ein Moussa, in Sinai (15 Kilometres South East of Suez) and a small series at Wadi El-Legaa in Southern Sinai (1750 metres altitude). My dates extend from the middle of March to the end of April.

EFFLATOUNIA

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 170; Engel (1937), in Lindner : *Flieg. Pal. Region*, 25, Bombyl., 178.

TYPE OF THE GENUS : *Do. jordanii*

aegyptiaca Bez. (1925, *loc. cit.*, 171).

Large flies clothed with dense furry whitish or yellowish pubescence, closely allied to *Dischistus* and *Acanthogeron* but distinguished by the face being narrower, more produced forward and bearing sparser and shorter

pubescence than in the former, by the distinct notch on the posterior margin of the eye, by the absence of pubescence or hair-fan on the metapleura, by the absence of the alula in the wing and by the atrophied or vestigial pulvilli.

Head somewhat broader than the thorax but less broad than in *Dischistus* because of the eyes being more elliptical and placed on a lower level owing to the higher arch of the thorax; frons in the male narrower than in *Dischistus* with the upper part in the shape of a very narrow elongate triangle (owing to the inner front margins of the eyes which do not quite touch, very gradually widening out from the ocellar tubercle downwards) but very broad in the female, being almost as broad as one eye and with a deep transverse median furrow; face narrower than in *Dischistus* but distinctly more produced forward cone-shaped, and in profile much shorter than the length of the eyes and clothed with shorter and much less dense, erect pubescence. Eyes elliptical, bare with the upper facets distinctly enlarged, very approximated (but not touching) in the male, but separated by the broad frons in the female, and with a distinct notch or indentation at the middle of the hind margin. Proboscis horizontally porrect, long, thin and horny; palpi narrow, short, and one-segmented. Antennae porrect, approximated at the base; basal segment much longer (about four times) than the second and bearing longish but not dense, straight hairs; second segment short, cup-shaped; third segment elongate, narrow and rather variable in shape, from almost cylindrical with the apex hardly broader than the middle and base, to very elongate conical with the basal half distinctly broader than the apical half; style short conical to cylindrical, in some specimens distinctly inserted in a dorsal position (at the apex) and bearing a terminal bristle.

Thorax oval, well arched, with dense furry (but not long) pubescence and fairly distinct preasutural and postalar bristles; scutellum broad and also bearing dense furry pubescence; metapleura bare.

Wings hyaline but with a brown fore margin, without spots (in the only representative of the genus known so far), and with a venation very similar to that of *Dischistus*, but cell R_5 which is usually open apically (although contracted), may be closed at the margin; r-m cross-vein placed well after the middle of 1st M_2 cell; 1st A cell contracted towards the wing margin but distinctly open; alula absent.

Legs long, thin, bearing spicules as in most of the representatives of closely allied genera; hind femora with a row of spines on the ventral side; tibiae all with rows of spicules and with short, weak terminal spurs; claws in the male only with one short blunt tooth a little beyond the middle; pulvilli minute, vestigial.

Abdomen conical in the male but broader, ovate in the female; in the

male the pubescence is dense, furry and very pale coloured, in which a few long black hairs occur but in the female the pubescence is much shorter, sub-erect and darker and the long upstanding black hairs are much more numerous than in the male; genitalia concealed in both sexes but the ovipositor is apparently without spines.

Nothing is known of the early stages of the single representative of this genus.

Owing to the rich material in my possession, I have been able to make a few important additions towards the definition of this genus. Bezzi (1925, *loc. cit.*) when establishing the Genus *Efflatounia* has omitted many rather outstanding characters, such as the total absence of the alula in the wings and the very different nature and colour of the pubescence in both sexes. It is most surprising that Engel (1937, *loc. cit.*) had not pointed out this most important omission of the entire absence of the alula. Furthermore « les tarses n'ont pas de pelotes et ont les ongles dentés », is misleading as the pulvilli (les pelotes) are not entirely absent but vestigial and the claws are dentate in the male only.

***Efflatounia aegyptiaca* BEZ.**

Bezzi (1925), *Bull. Soc. Roy. Entom. Egypte*, 1924, 171; Engel (1937) in Lindner: *Flieg. Pal. Region*, 25, Bombyl., 179, figs. 99-100.

DIAGNOSIS :

A large handsome fly with dense furry pubescence (greyish-white in the male and brownish-grey in the female), easily known by the hyaline wings in which the alula is absent and by the presence of minute, vestigial pulvilli to the legs.

DESCRIPTION :

♂ : *Head* (Pl. XXXVIII, figs. 543 and 544) black but entirely covered with a dense brownish tomentum which gives it a testaceous colour except on the occiput where occasionally, the tomentum is much paler and makes this region appear greyish; the pubescence on the frons and face is all blackish, not dense (and not sparse) erect, and the hairs are somewhat shorter than the length of the first antennal segment; on the lower part of the head, i.e. the rather puffed out jowls and lower part of the occiput, the pubescence is more dense, softer but not longer and from pale yellow to whitish; occiput with short stiff and rather dense brownish-yellow hairs above, but on the sides, behind the eye margins the hairs are sparse very short and mostly black; eyes not quite touching, but very approximated on the upper half of the frons, leaving a narrow but distinct testaceous almost parallel sided line which is about half the length of the distance between the ocellar tu-

hercle and the base of the antennae, and with a well pronounced indentation at the middle of the hind margin; ocellar tubercle blackish-brown with a fairly well furnished tuft of longish erect black hairs (similar to the hairs forming the pubescence on the frons); proboscis at least twice the length of the head (including the antennae), black; palpi thin, shorter than the third segment of the antennae, blackish and clothed with very sparse and very short erect yellowish pubescence; antennae black, covered with a pale brownish-grey tomentum which gives them a blackish-testaceous appearance; basal segment cylindrical, about three times the length of the second segment and bearing on the surface of its outer half only, erect black hairs which are similar in length and density to those found on the frons; second segment almost bare except for a few very short erect hairs about the apex, which are mostly yellowish (usually concentrated in a pre-apical, antero-ventral position); third segment bare, longer than the length of the two first segments together and varying somewhat in shape, from very elongate conical to almost cylindrical with the apex hardly broader than the middle and the base; this third segment shows a distinct circular constriction a little after the base and the small apical style is blackish, from conical to almost cylindrical and in some specimens inserted in a decidedly dorsal position and bearing a terminal short yellowish or whitish bristle.

Thorax entirely dull blackish, bearing a longish, soft furry pubescence which is pale yellowish all about the sides and the entire lower half of the disc but of a distinct cream buff to chamois colour on the anterior half⁽²⁵⁾; also many of the hairs beneath the postalar calli are chamois; a few of the hairs on the lower margin and lower third of the disc are black; chaetotactic bristles almost all yellow and a little longer than the hairs forming the furry pubescence; about four yellow praesutural; five to eight postalar, some yellow and some black; pleurae blackish; mesopleura with long tufted and furry mixed yellow and black pubescence; pteropleura with very soft, sparse short yellowish pubescence; hypopleura with a small tuft of long outstanding hairs most of which are yellowish and only a very few black; scutellum black with a similar pubescence to that on the dorsum of the thorax but with more numerous coarse, long black hairs all about the lower half and margin.

Wings (Pl. XXXVIII, fig. 545) entirely hyaline and characterised by the absence of the alula; cell R_s is more or less contracted at the apex and usually open but occasionally it is closed on the margin; r-m cross-vein placed on the distal third of 1st M_2 cell; squamae brownish (like the wing base and the fore margin) with a brownish-yellow margin and a rather dense

⁽²⁵⁾ Bezzi's (1924, *loc. cit.*) original description is wrong and misleading for he speaks of « deux lignes blanchâtres le long du dos du thorax » which do not exist, and « Tous les poils chez le mâle sont blanchâtres » which is far from being correct.

fringe of long whitish hairs; halteres with a brown stem and a rather small Isabella colour to honey yellow knob.

Legs entirely blackish-brown with a reddish tinge or more or less dark obscure blackish; coxae with long rather dense pendent soft whitish hairs; femora with longish but not dense outstanding mixed pale yellowish and black hairs and the posterior femora only with a ventral row of about seven yellowish-red spines on the apical half (or rather more); tibiae with very short, closely adpressed glistening yellowish pubescence and with the spicules (forming several rows on the posterior tibiae) as well as the weak terminal spurs yellowish to brownish-red; tarsi with very dense minute felty reddish pubescence on the soles, as well as with short reddish and black spicules, the black ones being much stronger and concentrated around the apex of the third segment and on the ventral side of the fourth and fifth segments; claws (Pl. XXXVIII, fig. 546) black and with a broad, somewhat blunt and rather short tooth just after the middle; pulvilli vestigial (minute), whitish.

Abdomen entirely black with a dense upright soft furry pubescence which is much longer than that of the thorax but which is not dense enough so as to hide the background; the hairs forming this pubescence are from whitish apically, with a yellowish tinge towards the base, to all pale yellowish or even pale brownish, which gives the abdomen a distinct yellowish-grey or dirty whitish colour, and in addition, there are tufts of long black hairs mixed with the former, but somewhat concentrated about the lower border of the segment and never reaching the sides; these long erect black hairs vary much in number, from very few and scattered to rather numerous; venter dull blackish with narrow, obscure reddish-brown hind borders to most of the sternites and with sparse long, extremely soft and delicate whitish pubescent and with a few coarse erect black hairs placed in two admedian rows (of about six hairs each) a little before the lower border of the third to fifth or sixth segments; genitalia (Pl. XXXVIII, fig. 547) obscure dark reddish-brown with short mixed reddish and black pubescence.

♀: Not much unlike the male but the abdomen is much broader and owing to the different nature and colour of the general pubescence, the thorax usually shows two admedian pale longitudinal stripes, the abdomen has inconspicuous but distinct white transverse bands and the legs are paler (pale chestnut) with the claws normal.

Head (Pl. XXXVIII, figs. 548-550); frons at the vertex almost one third the width of the head and pale grey testaceous like the face, but occasionally it may be much darker than the latter, of a deep cinnamon brown colour; the pubescence on the head is of the same colour, and of about the same length as in the male but somewhat sparser.

Thorax dark grey with the usual three broad dull black longitudinal stripes, the median one being rarely divided by a narrow pale stripe on the upper third of the disc, but at first sight the dorsum appears dull black with two narrow, admedian greyish longitudinal stripes and occasionally with a similar but shorter, indistinct median stripe; the colour of the pubescence is not unlike that of the male but the erect hairs are shorter and about the centre and lower half of the disc (except on, and near the lower margin) the yellow ochre hairs are short, untidy looking and adpressed; scutellum black with the shorter, very untidy deep yellow ochre pubescence on the disc a little longer, less adpressed and more dense than on the mesonotum and usually with many more long coarse, upstanding black hairs than in the male.

Wing (Pl. XXXVIII, fig. 551).

Legs testaceous to dark cacao brown with the claws (Pl. XXXVIII, fig. 552) normal (i.e. without a tooth anywhere).

Abdomen with the pubescence on the dorsum much shorter than in the male and corresponding to that of the thorax, adpressed, untidy and yellow ochre but all about the lower border of the second to fourth segments it is whitish, which gives the abdomen a weak but distinct banded appearance; on the sides the hairs are much longer (than on the dorsum), erect and much paler (being whitish or pale yellowish) and the long coarse (almost bristly) black hairs are also much more numerous than in the male being profusely scattered on the apical third or fourth of the segments (except the basal segment); ovipositor black but reddish-yellow to reddish-brown at the apex and with sparse longish black hairs mixed with a few much shorter yellowish hairs.

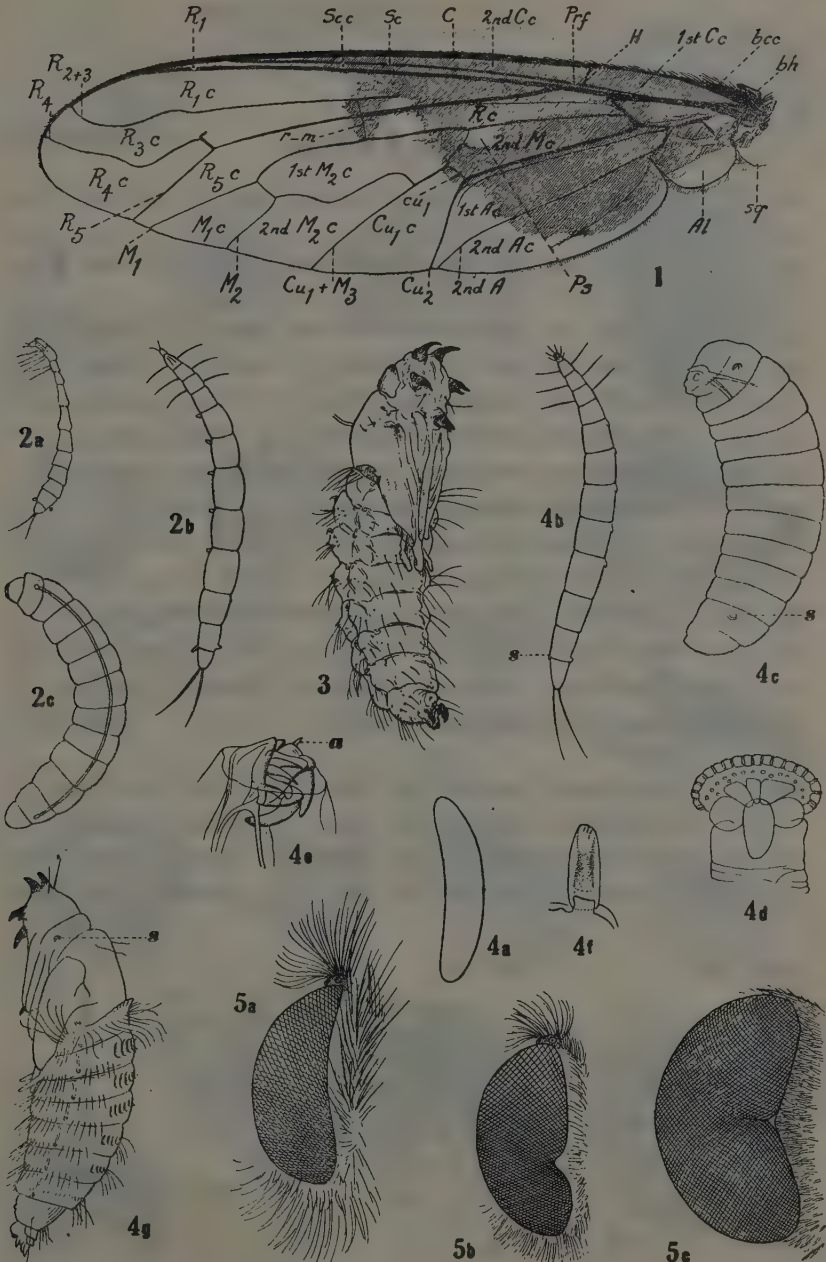
♂, ♀ Length of body : 9-13 mm., of proboscis : 4.8-6.5 mm.; breadth (with wings expanded) : 17-24 mm.

E. aegyptiaca is not uncommon in many of the Wadis South-East of Helwan in the spring. I possess ten males and more than twenty females, including Bezzî's types originating from Wadi Hoff, Wadi Zohleiga, Wadi Um-Elek, Wadi Rishrash, Wadi Wirak (North Galala), and one specimen from Wadi Um-Biar (Kosseir). Like most of the representatives of its allied genera such as *Dischistus* and *Systoechus* the power of « hovering » possessed by the male is of the most perfect nature and they can often defy the best efforts of capture. This no doubt, is the reason for the much greater proportion of the females given above. My dates extend from 17.II. to 16.IV. This species appears to be endemic to the Eastern Desert fauna; I possess no record of any other locality and it is not known from other countries.

PLATES
I-XXXVIII

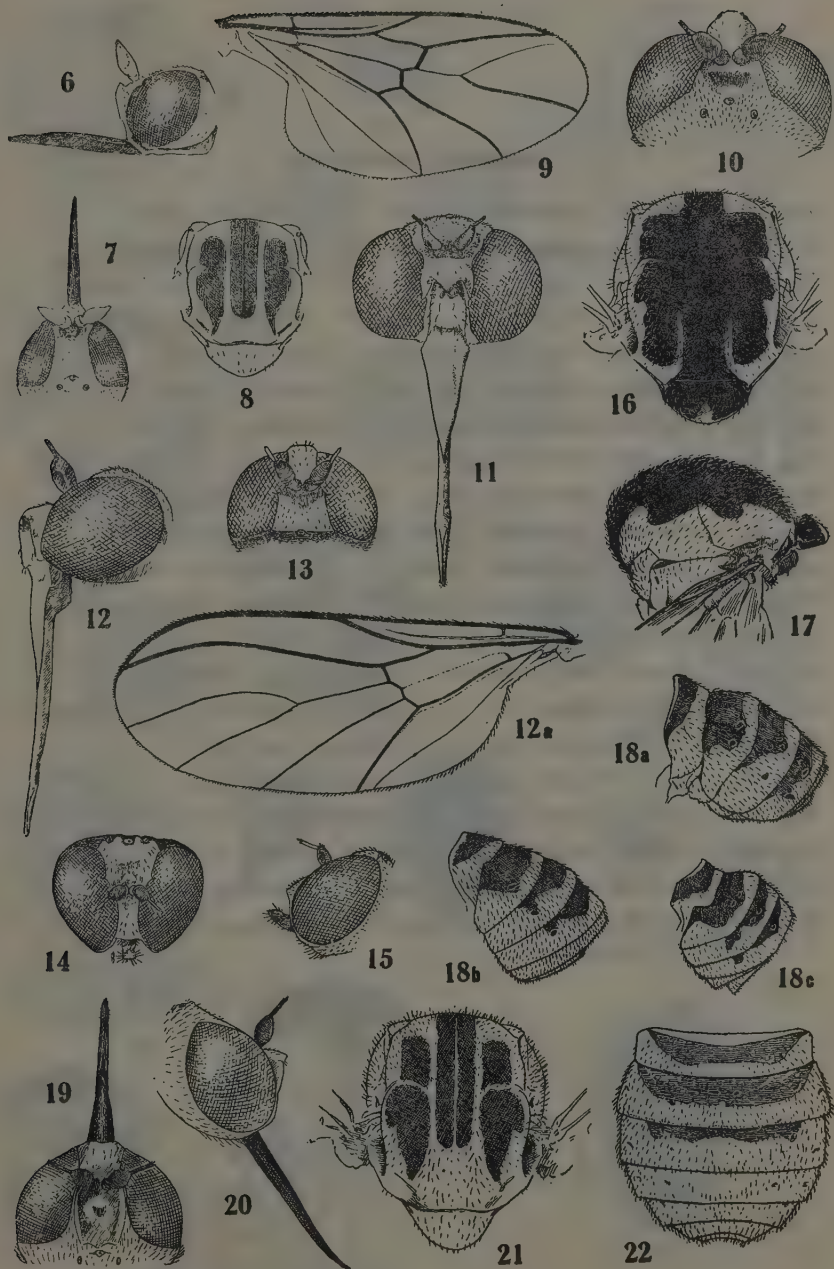
Explanation of Plate I

- Fig. 1. — Wing of *Exoprosopa aegina* Wied.
- Fig. 2. — *a.* first, *b.* second, and *c.* third instars of larvae of *Bombylius vulpinus* Wied. [after Engel].
- Fig. 3. — Pupa of *Bombylius* spec. [after Engel].
- Fig. 4. — *Bombylius vulpinus* Wied. (*fugax* Wied.) : *a.* egg ; *b.* first stage larva ; *c.* second and third stage larva ; *d.* anterior stigma of *c.* ; *e.* buccal armature of *c.* ; *f.* antenna of *c.* ; *g.* pupa [after Engel].
- Fig. 5. — Head (eye), in profile, of : *a.* *Bombylius fimbriatus* ♂, *b.* *Efflatounia aegyptiaca* ♂, and *c.* *Exoprosopa aegina* ♂.
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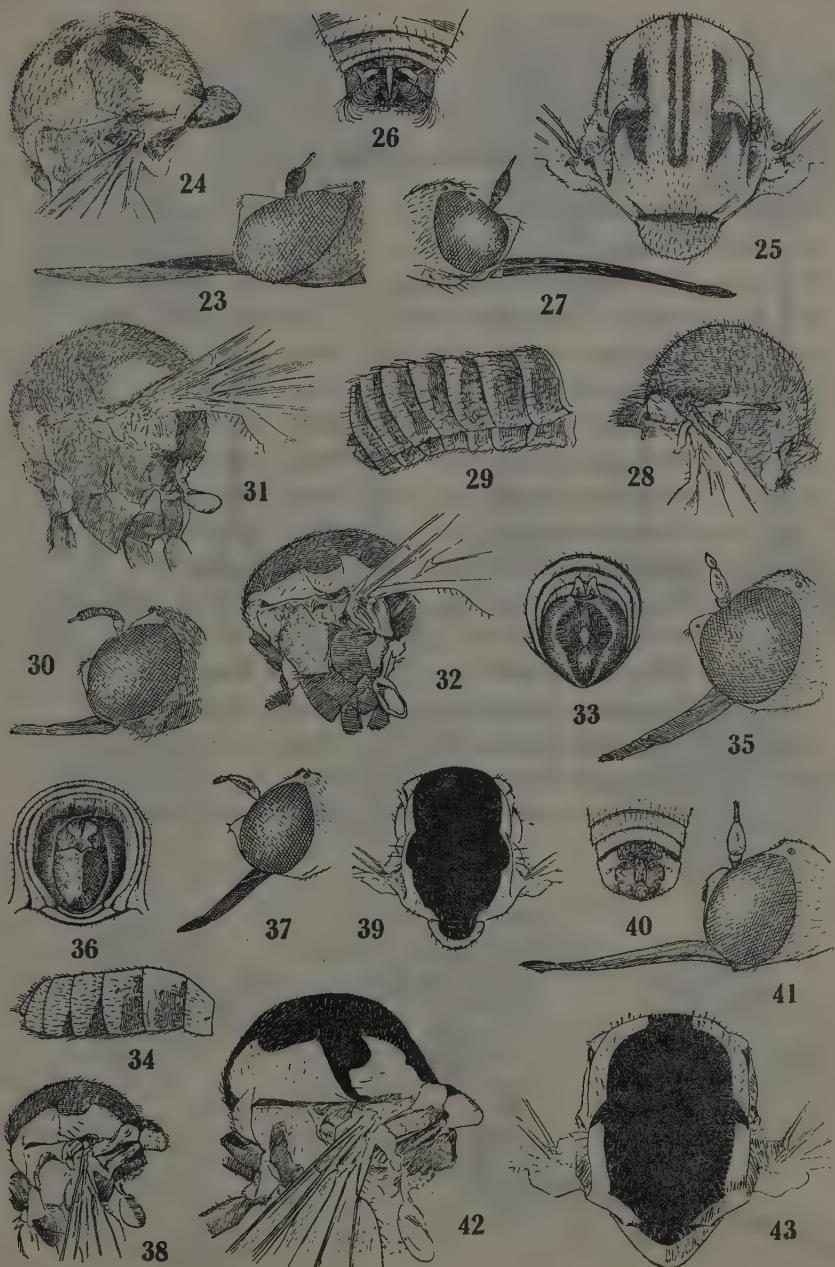
Explanation of Plate II

- Fig. 6. — *Leylaiya* nov. gen. *mimnermia* nov. spec., ♀ : Head, in profile.
- Fig. 7. — *Leylaiya* nov. gen. *mimnermia* nov. spec., ♀ : Head, from above.
- Fig. 8. — *Leylaiya* nov. gen. *mimnermia* nov. spec., ♀ : Thorax.
- Fig. 9. — *Leylaiya* nov. gen. *mimnermia* nov. spec., ♀ : Wing.
- Fig. 10. — *Empidideicus carthaginiensis* Beck., ♂ : Head, from above.
- Fig. 11. — *Empidideicus carthaginiensis* Beck., ♂ : Head, from in front.
- Fig. 12. — *Empidideicus carthaginiensis* Beck., ♂ : Head, in profile.
- Fig. 12. — *Empidideicus carthaginiensis* Beck., ♀ : Wing.
- Fig. 13. — *Empidideicus Efflatouni* Engel, ♂ : Head, from above.
- Fig. 14. — *Empidideicus Efflatouni* Engel, ♂ : Head, from in front.
- Fig. 15. — *Empidideicus Efflatouni* Engel, ♂ : Head, in profile.
- Fig. 16. — *Empidideicus Efflatouni* Engel, ♂ : Thorax, from above.
- Fig. 17. — *Empidideicus Efflatouni* Engel, ♂ : Thorax, in profile.
- Fig. 18. — *Empidideicus Efflatouni* Engel, ♂ : a., b., c., abdomen, in profile.
- Fig. 19. — *Empidideicus mariouti* nov. spec., ♂ : Head, from above.
- Fig. 20. — *Empidideicus mariouti* nov. spec., ♂ : Head, in profile.
- Fig. 21. — *Empidideicus mariouti* nov. spec., ♂ : Thorax, from above.
- Fig. 22. — *Empidideicus mariouti* nov. spec., ♂ : Abdomen, from above.
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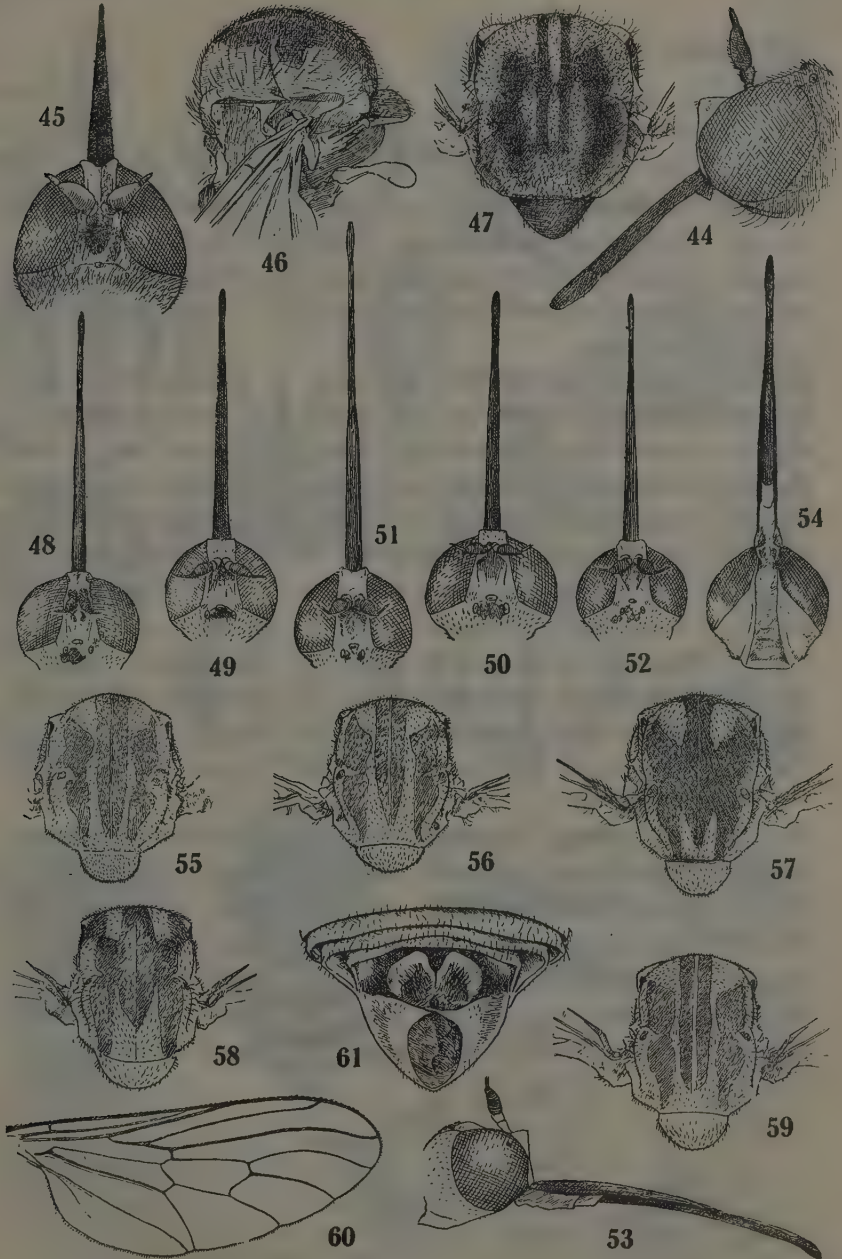
Explanation of Plate III

- Fig. 23. — *Cyrtosia Gulperii* nov. spec., ♂ : Head, in profile.
Fig. 24. — *Cyrtosia Gulperii* nov. spec., ♂ : Thorax, in profile.
Fig. 25. — *Cyrtosia Gulperii* nov. spec., ♂ : Thorax, from above.
Fig. 26. — *Cyrtosia Gulperii* nov. spec., ♂ : Hypopygium, ventral view.
Fig. 27. — *Cyrtosia Injii* nov. spec., ♂ : Head, in profile.
Fig. 28. — *Cyrtosia Injii* nov. spec., ♂ : Thorax, in profile.
Fig. 29. — *Cyrtosia Injii* nov. spec., ♂ : Abdomen, side view.
Fig. 30. — *Cyrtosia luteiventris* Bez., ♂ : Head, in profile.
Fig. 31. — *Cyrtosia luteiventris* Bez., ♂ : Thorax, side view.
Fig. 32. — *Cyrtosia marginata* Perris, ♂ : Thorax, side view.
Fig. 33. — *Cyrtosia marginata* Perris, ♂ : Hypopygium, back view.
Fig. 34. — *Cyrtosia marginata* Perris, ♀ : Abdomen, side view.
Fig. 35. — *Cyrtosia nubila* Bez., ♂ : Head, in profile.
Fig. 36. — *Cyrtosia nubila* Bez., ♂ : Hypopygium, back view.
Fig. 37. — *Cyrtosia opaca* Lw., ♂ : Head, in profile.
Fig. 38. — *Cyrtosia opaca* Lw., ♂ : Thorax, side view.
Fig. 39. — *Cyrtosia opaca* Lw., ♂ : Thorax, from above.
Fig. 40. — *Cyrtosia opaca* Lw., ♂ : Hypopygium, ventral view.
Fig. 41. — *Cyrtosia separata* nov. spec., ♀ : Head, in profile.
Fig. 42. — *Cyrtosia separata* nov. spec., ♀ : Thorax, side view.
Fig. 43. — *Cyrtosia separata* nov. spec., ♀ : Thorax, dorsal view.
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Explanation of Plate IV

- Fig. 44. — *Cyrtosia tetragramma* Bez., ♂ : Head, in profile.
Fig. 45. — *Cyrtosia tetragramma* Bez., ♂ : Head, dorsal view.
Fig. 46. — *Cyrtosia tetragramma* Bez., ♂ : Thorax, side view.
Fig. 47. — *Cyrtosia tetragramma* Bez., ♂ : Thorax, dorsal view.
Fig. 48. — *Platypygus melleus* Lw., ♂ : Head, dorsal view.
Fig. 49. — *Platypygus melleus* Lw., ♂ : Head, dorsal view.
Fig. 50. — *Platypygus melleus* Lw., ♂ : Head, dorsal view.
Fig. 51. — *Platypygus melleus* Lw., ♂ : Head, dorsal view.
Fig. 52. — *Platypygus melleus* Lw., ♂ : Head, dorsal view.
Fig. 53. — *Platypygus melleus* Lw., ♂ : Head, in profile.
Fig. 54. — *Platypygus melleus* Lw., ♂ : Head, ventral view.
Fig. 55. — *Platypygus melleus* Lw., ♂ : Thorax, dorsal view.
Fig. 56. — *Platypygus melleus* Lw., ♂ : Thorax, dorsal view.
Fig. 57. — *Platypygus melleus* Lw., ♂ : Thorax, dorsal view.
Fig. 58. — *Platypygus melleus* Lw., ♂ : Thorax, dorsal view.
Fig. 59. — *Platypygus melleus* Lw., ♂ : Thorax, dorsal view.
Fig. 60. — *Platypygus melleus* Lw., ♂ : Wing.
Fig. 61. — *Platypygus melleus* Lw., ♂ : Hypopygium, ventral view.
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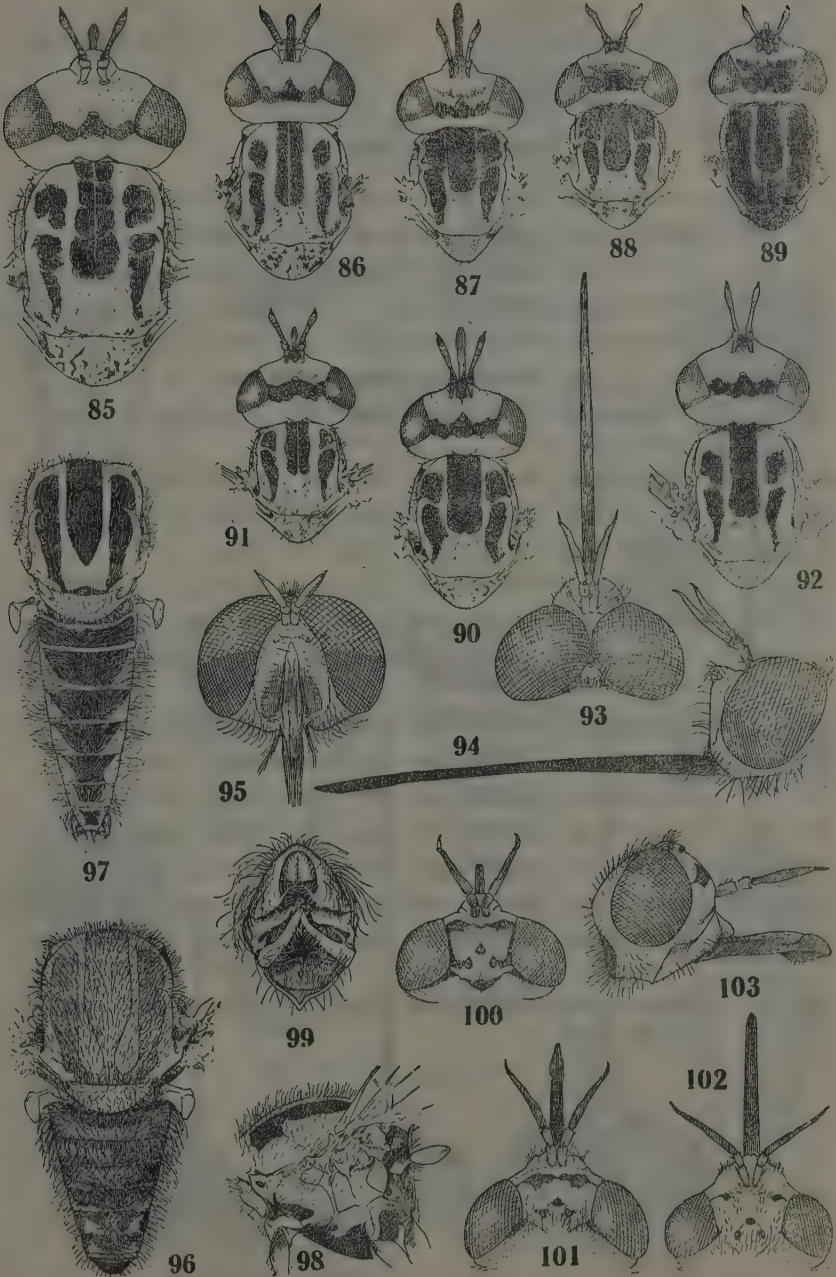
Explanation of Plate V

- Fig. 62. — *Mariobezzia Catherinae* nov. spec., ♂ : Head, from above.
- Fig. 63. — *Mariobezzia Catherinae* nov. spec., ♂ : Head, in profile.
- Fig. 64. — *Mariobezzia Catherinae* nov. spec., ♂ : Head, from in front.
- Fig. 65. — *Mariobezzia Catherinae* nov. spec., ♂ : Thorax and abdomen, from above.
- Fig. 66. — *Mariobezzia Catherinae* nov. spec., ♀ : Head, dorsal view.
- Fig. 67. — *Mariobezzia Catherinae* nov. spec., ♀ : Head, in profile.
- Fig. 68. — *Mariobezzia Catherinae* nov. spec., ♀ : Head, from in front.
- Fig. 69. — *Mariobezzia Catherinae* nov. spec., ♀ : Thorax, dorsal view.
- Fig. 70. — *Mariobezzia Catherinae* nov. spec., ♀ : Abdomen, dorsal view.
- Fig. 71. — *Mariobezzia Lichtwardti* Beck., ♂ : Head, dorsal view.
- Fig. 72. — *Mariobezzia Lichtwardti* Beck., ♂ : Head, in profile.
- Fig. 73. — *Mariobezzia Lichtwardti* Beck., ♂ : Head, in profile.
- Fig. 74. — *Mariobezzia Lichtwardti* Beck., ♂ : Head, from in front.
- Fig. 75. — *Mariobezzia Lichtwardti* Beck., ♂ : Head, from in front.
- Fig. 76. — *Mariobezzia Lichtwardti* Beck., ♂ : Wing.
- Fig. 77. — *Mariobezzia Lichtwardti* Beck., ♂ : Thorax and abdomen, dorsal view.
- Fig. 78. — *Mariobezzia Lichtwardti* Beck., ♂ : Hypopygium, back view.
- Fig. 79. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, in profile.
- Fig. 80. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, in profile.
- Fig. 81. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, front view.
- Fig. 82. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, front view.
- Fig. 83. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, dorsal view.
- Fig. 84. — *Mariobezzia Lichtwardti* Beck., ♀ : Head, dorsal view.
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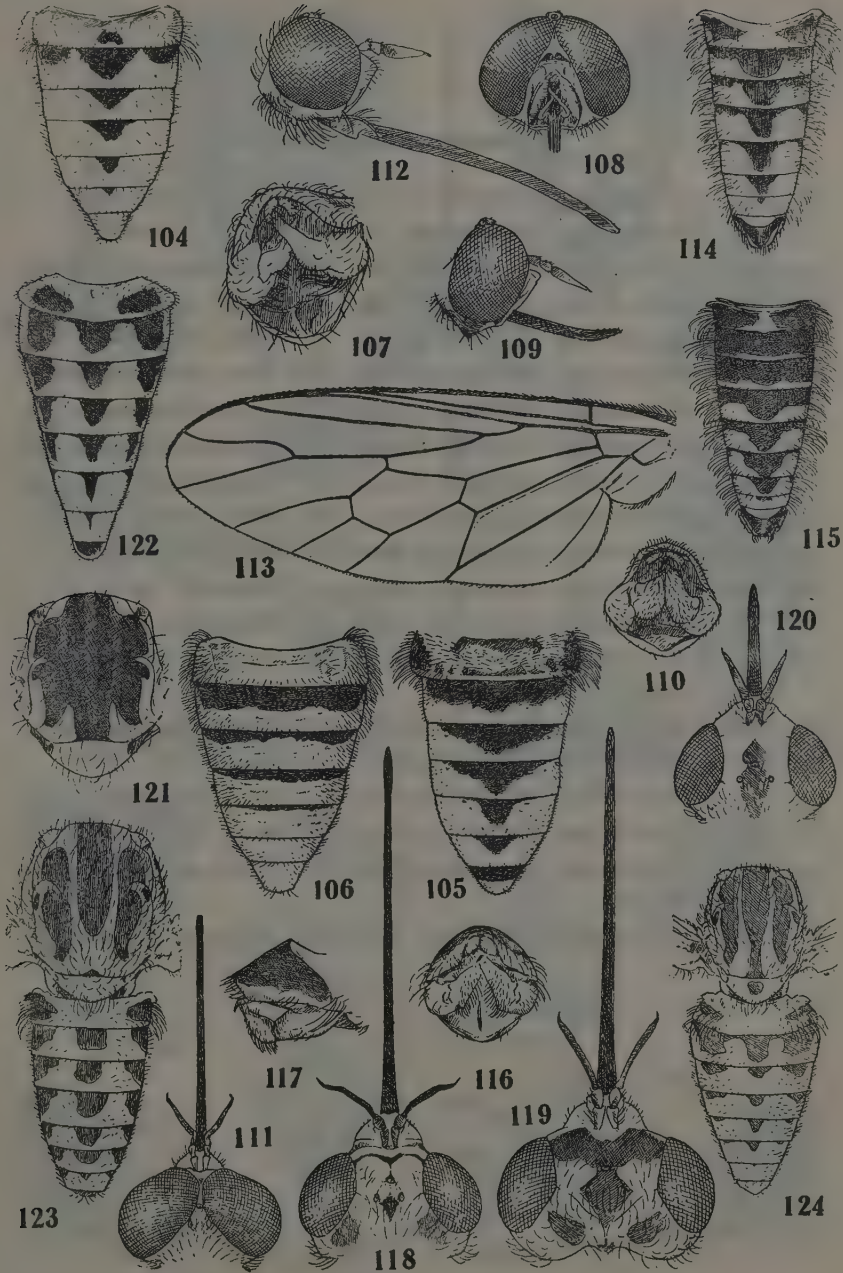
Explanation of Plate VI

- Fig. 85. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 86. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 87. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 88. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 89. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 90. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 91. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 92. — *Mariobezzia Lichtwardti* Beck., ♀ : Head and thorax, dorsal view.
- Fig. 93. — *Heterotropus aegyptiacus* Param., ♂ : Head, dorsal view.
- Fig. 94. — *Heterotropus aegyptiacus* Param., ♂ : Head, in profile.
- Fig. 95. — *Heterotropus aegyptiacus* Param., ♂ : Head, front view.
- Fig. 96. — *Heterotropus aegyptiacus* Param., ♂ : Thorax and abdomen, dorsal view.
- Fig. 97. — *Heterotropus aegyptiacus* Param., ♂ : Thorax and abdomen, dorsal view.
- Fig. 98. — *Heterotropus aegyptiacus* Param., ♂ : Thorax, side view.
- Fig. 99. — *Heterotropus aegyptiacus* Param., ♂ : Hypopygium, back view.
- Fig. 100. — *Heterotropus aegyptiacus* Param., ♀ : Head, dorsal view.
- Fig. 101. — *Heterotropus aegyptiacus* Param., ♀ : Head, dorsal view.
- Fig. 102. — *Heterotropus aegyptiacus* Param., ♀ : Head, dorsal view.
- Fig. 103. — *Heterotropus aegyptiacus* Param., ♀ : Head, in profile.



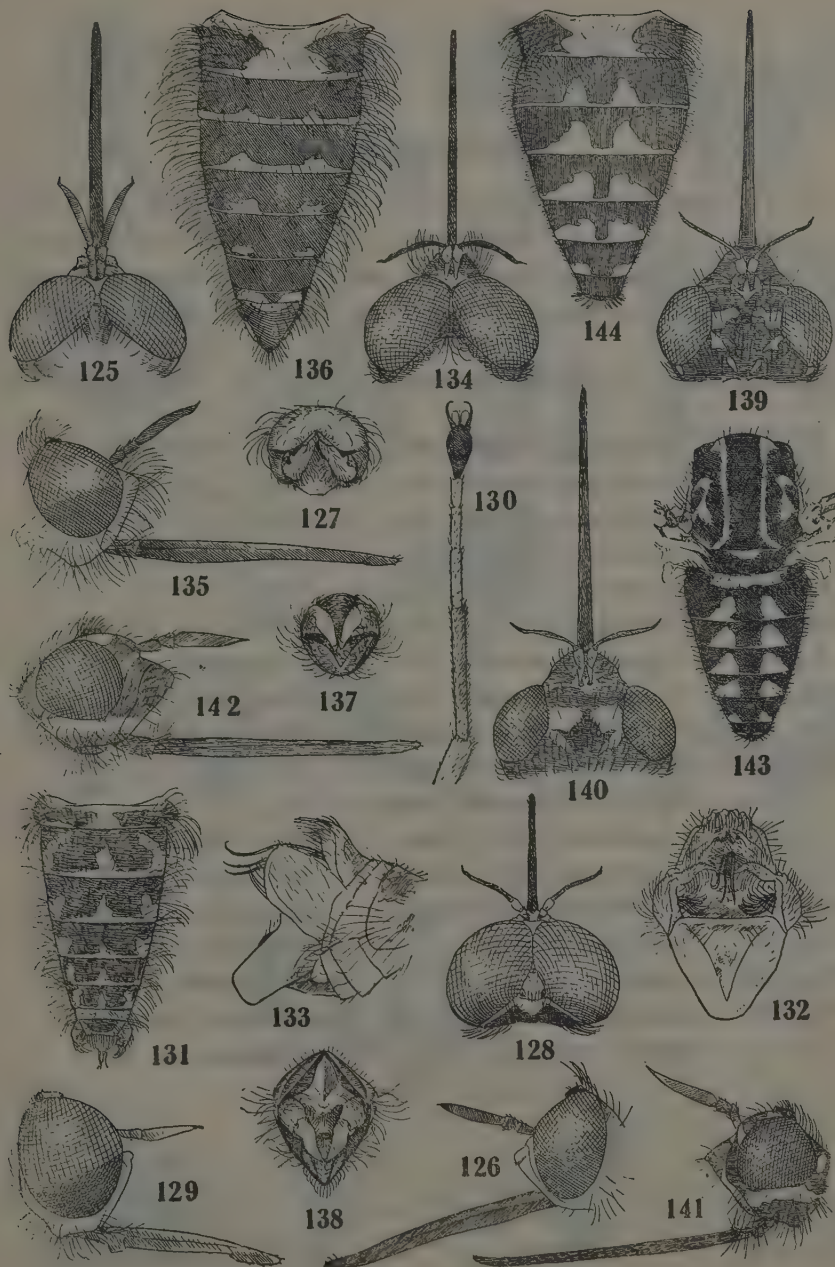
Explanation of Plate VII

- Fig. 104. — *Heterotropus aegyptiacus* Param., ♀ : Abdomen, dorsal view.
Fig. 105. — *Heterotropus aegyptiacus* Param., ♀ : Abdomen, dorsal view.
Fig. 106. — *Heterotropus aegyptiacus* Param., ♀ : Abdomen, dorsal view.
Fig. 107. — *Heterotropus bisglaucus* Bez., ♂ : Hypopygium, back view.
Fig. 108. — *Heterotropus elephantinus* Séguy, ♂ : Head, front view.
Fig. 109. — *Heterotropus elephantinus* Séguy, ♂ : Head, in profile.
Fig. 110. — *Heterotropus elephantinus* Séguy, ♂ : Hypopygium, back view.
Fig. 111. — *Heterotropus maculiventris* Bez., ♂ : Head, dorsal view.
Fig. 112. — *Heterotropus maculiventris* Bez., ♂ : Head, in profile.
Fig. 113. — *Heterotropus maculiventris* Bez., ♂ : Wing.
Fig. 114. — *Heterotropus maculiventris* Bez., ♂ : Abdomen, dorsal view.
Fig. 115. — *Heterotropus maculiventris* Bez., ♂ : Abdomen, dorsal view.
Fig. 116. — *Heterotropus maculiventris* Bez., ♂ : Hypopygium, back view.
Fig. 117. — *Heterotropus maculiventris* Bez., ♂ : Hypopygium, side view.
Fig. 118. — *Heterotropus maculiventris* Bez., ♀ : Head, dorsal view.
Fig. 119. — *Heterotropus maculiventris* Bez., ♀ : Head, dorsal view.
Fig. 120. — *Heterotropus maculiventris* Bez., ♀ : Head, dorsal view.
Fig. 121. — *Heterotropus maculiventris* Bez., ♀ : Thorax, dorsal view.
Fig. 122. — *Heterotropus maculiventris* Bez., ♀ : Abdomen, dorsal view.
Fig. 123. — *Heterotropus maculiventris* Bez., ♀ : Thorax and abdomen, dorsal view.
Fig. 124. — *Heterotropus maculiventris* Bez., ♀ : Thorax and abdomen, dorsal view.
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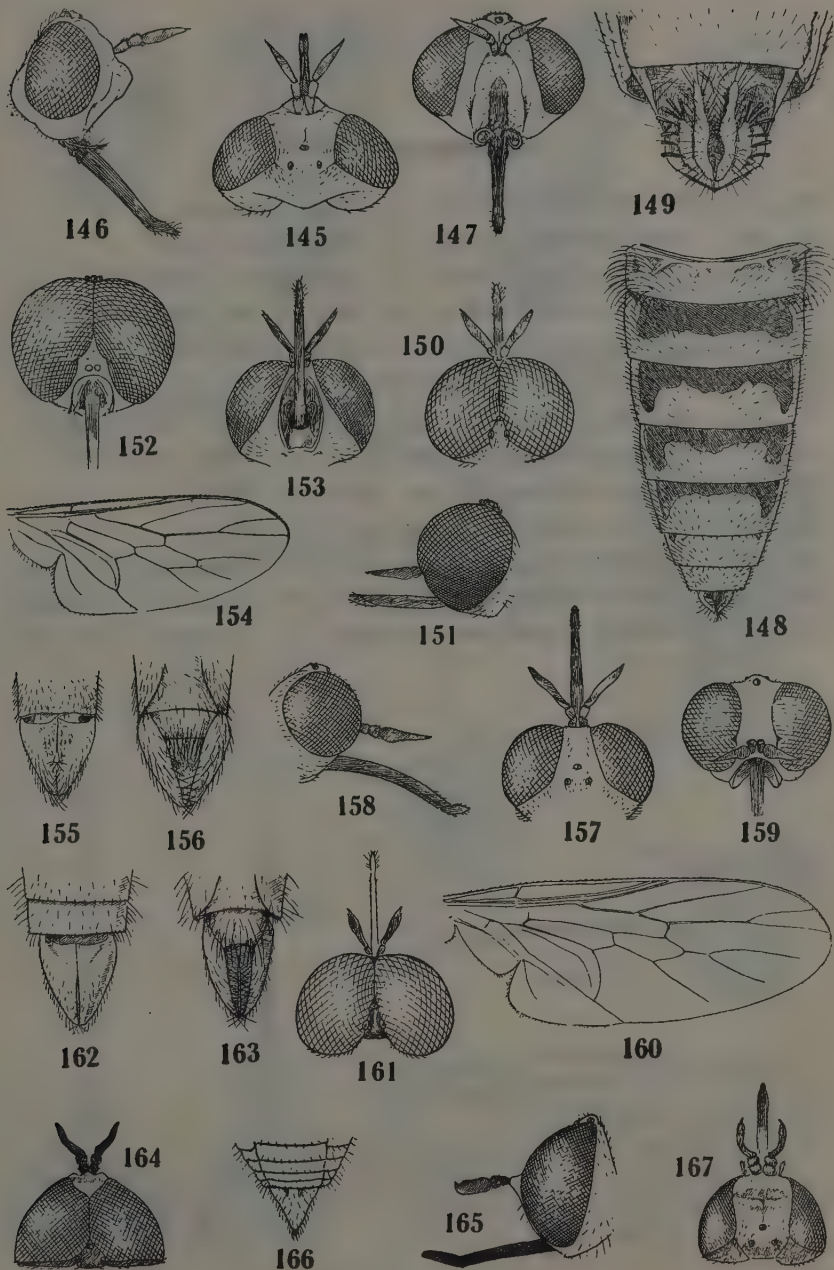
Explanation of Plate VIII

- Fig. 125. — *Heterotropus magnirostris* Bez., ♂ : Head, dorsal view.
Fig. 126. — *Heterotropus magnirostris* Bez., ♂ : Head, in profile.
Fig. 127. — *Heterotropus magnirostris* Bez., ♂ : Hypopygium, back view.
Fig. 128. — *Heterotropus sabulosus* Param., ♂ : Head, dorsal view.
Fig. 129. — *Heterotropus sabulosus* Param., ♂ : Head, in profile.
Fig. 130. — *Heterotropus sabulosus* Param., ♂ : Front tarsal segments.
Fig. 131. — *Heterotropus sabulosus* Param., ♂ : Abdomen, dorsal view.
Fig. 132. — *Heterotropus sabulosus* Param., ♂ : Hypopygium, back view.
Fig. 133. — *Heterotropus sabulosus* Param., ♂ : Hypopygium, side view.
Fig. 134. — *Heterotropus stigmaticus* Bez., ♂ : Head, dorsal view.
Fig. 135. — *Heterotropus stigmaticus* Bez., ♂ : Head, in profile.
Fig. 136. — *Heterotropus stigmaticus* Bez., ♂ : Abdomen, dorsal view.
Fig. 137. — *Heterotropus stigmaticus* Bez., ♂ : Hypopygium, back view.
Fig. 138. — *Heterotropus stigmaticus* Bez., ♂ : Hypopygium, ventral view.
Fig. 139. — *Heterotropus stigmaticus* Bez., ♀ : Head, dorsal view.
Fig. 140. — *Heterotropus stigmaticus* Bez., ♀ : Head, dorsal view.
Fig. 141. — *Heterotropus stigmaticus* Bez., ♀ : Head, in profile.
Fig. 142. — *Heterotropus stigmaticus* Bez., ♀ : Head, in profile.
Fig. 143. — *Heterotropus stigmaticus* Bez., ♀ : Thorax and abdomen, dorsal view.
Fig. 144. — *Heterotropus stigmaticus* Bez., ♀ : Abdomen, dorsal view.
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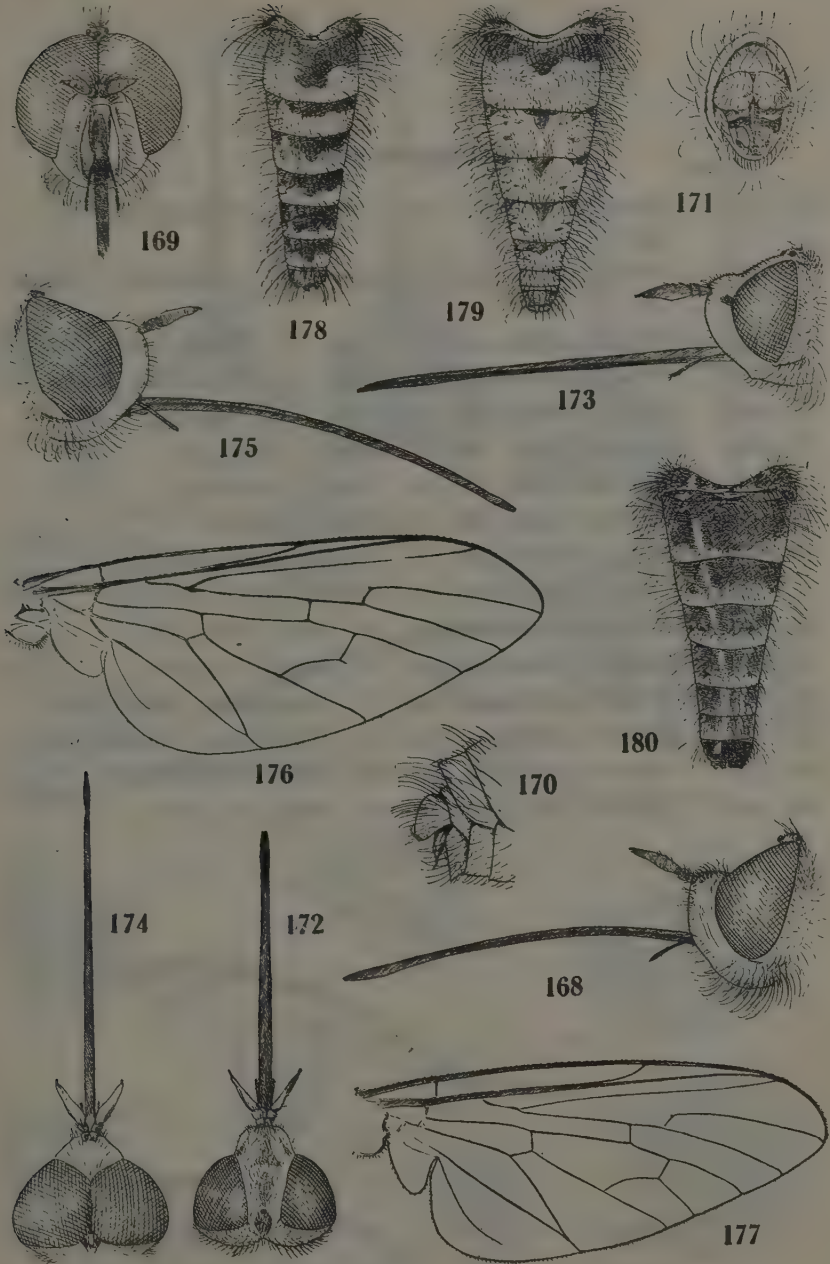
Explanation of Plate IX

- Fig. 145. — *Heterotropus xanthothorax* nov. spec., ♀ : Head, dorsal view.
Fig. 146. — *Heterotropus xanthothorax* nov. spec., ♀ : Head, in profile.
Fig. 147. — *Heterotropus xanthothorax* nov. spec., ♀ : Head, front view.
Fig. 148. — *Heterotropus xanthothorax* nov. spec., ♀ : Abdomen, dorsal view.
Fig. 149. — *Heterotropus xanthothorax* nov. spec., ♀ : Ovipositor, ventral view.
Fig. 150. — *Alloxytropus anomalus* Bez., ♂ : Head, dorsal view.
Fig. 151. — *Alloxytropus anomalus* Bez., ♂ : Head, in profile.
Fig. 152. — *Alloxytropus anomalus* Bez., ♂ : Head, front view.
Fig. 153. — *Alloxytropus anomalus* Bez., ♂ : Head, ventral view.
Fig. 154. — *Alloxytropus anomalus* Bez., ♂ : Wing.
Fig. 155. — *Alloxytropus anomalus* Bez., ♂ : Hypopygium, dorsal view.
Fig. 156. — *Alloxytropus anomalus* Bez., ♂ : Hypopygium, ventral view.
Fig. 157. — *Alloxytropus anomalus* Bez., ♀ : Head, dorsal view.
Fig. 158. — *Alloxytropus anomalus* Bez., ♀ : Head, in profile.
Fig. 159. — *Alloxytropus anomalus* Bez., ♀ : Head, front view.
Fig. 160. — *Alloxytropus anomalus* Bez., ♀ : Wing.
Fig. 161. — *Alloxytropus Bezzii* Param., ♂ : Head, dorsal view.
Fig. 162. — *Alloxytropus Bezzii* Param., ♂ : Hypopygium, dorsal view.
Fig. 163. — *Alloxytropus Bezzii* Param., ♂ : Hypopygium, ventral view.
Fig. 164. — *Apolysis eremophila* Lw., ♂ : Head, dorsal view.
Fig. 165. — *Apolysis eremophila* Lw., ♂ : Head, in profile.
Fig. 166. — *Apolysis eremophila* Lw., ♂ : Hypopygium, ventral view.
Fig. 167. — *Apolysis eremophila* Lw., ♀ : Head, dorsal view.
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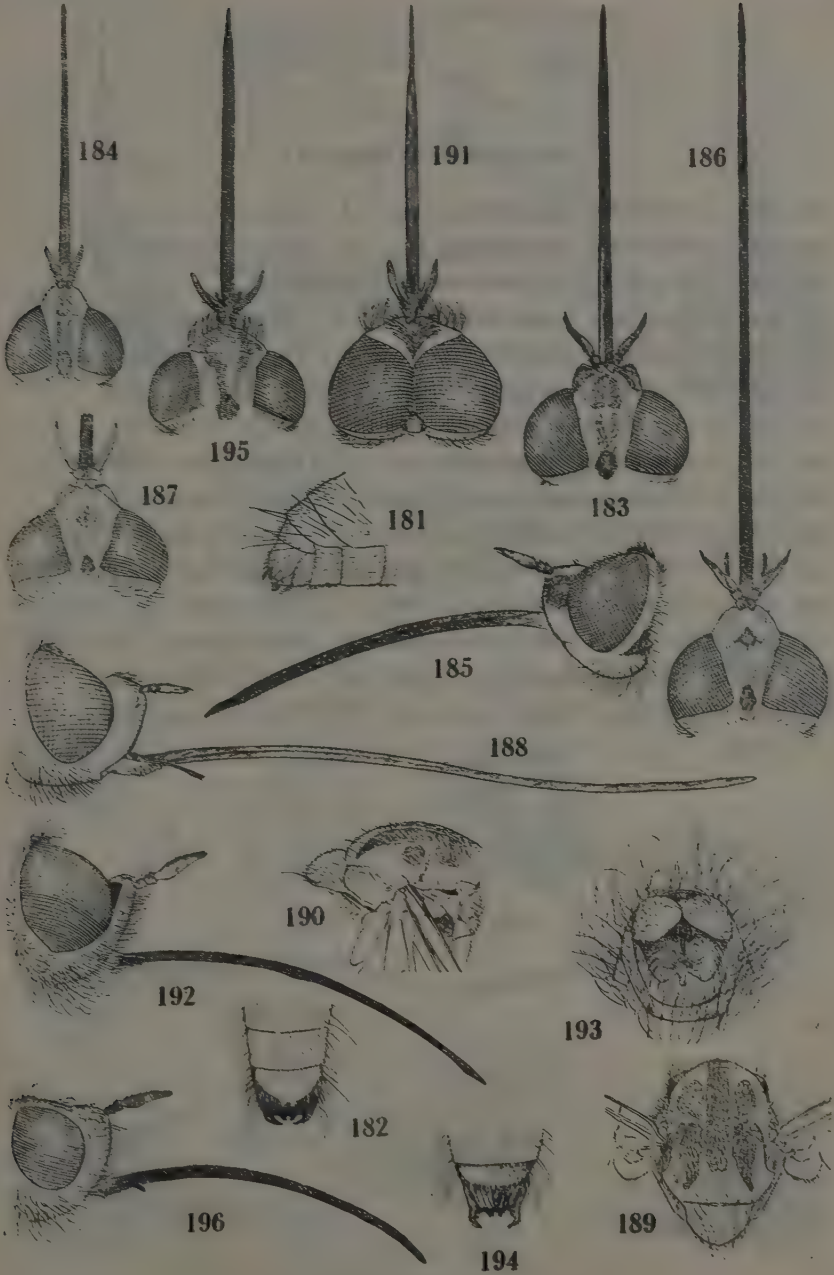
Explanation of Plate X

- Fig. 168. — *Phthiria Gaedei* Wied., ♂ : Head, in profile.
Fig. 169. — *Phthiria Gaedei* Wied., ♂ : Head, front view.
Fig. 170. — *Phthiria Gaedei* Wied., ♂ : Hypopygium, side view.
Fig. 171. — *Phthiria Gaedei* Wied., ♂ : Hypopygium, back view.
Fig. 172. — *Phthiria Gaedei* Wied., ♀ : Head, dorsal view.
Fig. 173. — *Phthiria Gaedei* Wied., ♀ : Head, in profile.
Fig. 174. — *Phthiria Salmayensis* nov. spec., ♂ : Head, dorsal view.
Fig. 175. — *Phthiria Salmayensis* nov. spec., ♂ : Head, in profile.
Fig. 176. — *Phthiria Salmayensis* nov. spec., ♂ : Wing.
Fig. 177. — *Phthiria Salmayensis* nov. spec., ♂ : Wing.
Fig. 178. — *Phthiria Salmayensis* nov. spec., ♂ : Abdomen, dorsal view.
Fig. 179. — *Phthiria Salmayensis* nov. spec., ♂ : Abdomen, dorsal view.
Fig. 180. — *Phthiria Salmayensis* nov. spec., ♂ : Abdomen, dorsal view.
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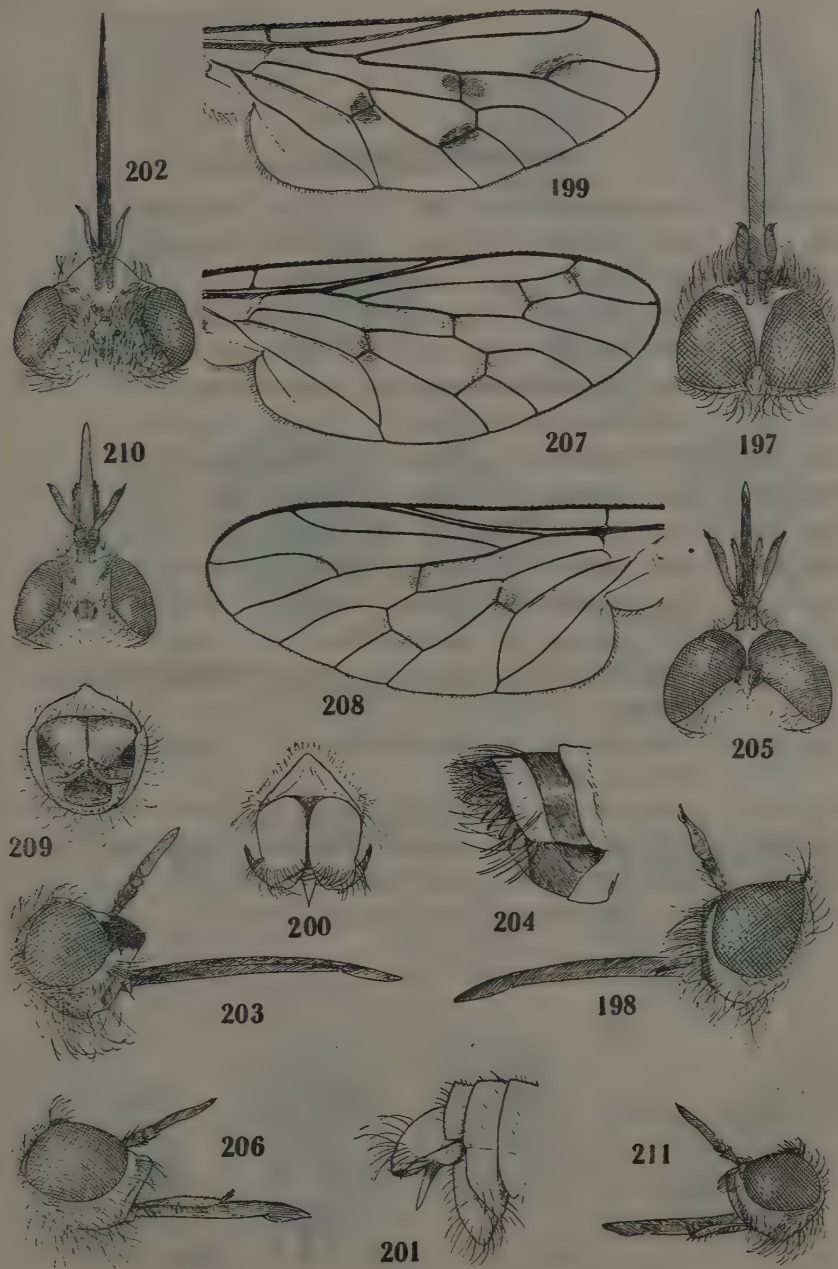
Explanation of Plate XI

- Fig. 181. — *Phthiria Salmayensis* nov. spec., ♂ : Hypopygium, side view.
- Fig. 182. — *Phthiria Salmayensis* nov. spec., ♂ : Hypopygium, ventral view.
- Fig. 183. — *Phthiria Salmayensis* nov. spec., ♀ : Head, dorsal view.
- Fig. 184. — *Phthiria Salmayensis* nov. spec., ♀ : Head, dorsal view.
- Fig. 185. — *Phthiria Salmayensis* nov. spec., ♀ : Head, in profile.
- Fig. 186. — *Phthiria tricolor* Bez. ♀ : Head, dorsal view.
- Fig. 187. — *Phthiria tricolor* Bez. ♀ : Head, dorsal view.
- Fig. 188. — *Phthiria tricolor* Bez. ♀ : Head, in profile.
- Fig. 189. — *Phthiria tricolor* Bez. ♀ : Thorax, dorsal view.
- Fig. 190. — *Phthiria tricolor* Bez. ♀ : Thorax, side view.
- Fig. 191. — *Phthiria xanthaspis* Bez., ♂ : Head, dorsal view.
- Fig. 192. — *Phthiria xanthaspis* Bez., ♂ : Head, in profile.
- Fig. 193. — *Phthiria xanthaspis* Bez., ♂ : Hypopygium, back view.
- Fig. 194. — *Phthiria xanthaspis* Bez., ♂ : Hypopygium, ventral view.
- Fig. 195. — *Phthiria xanthaspis* Bez., ♀ : Head, dorsal view.
- Fig. 196. — *Phthiria xanthaspis* Bez., ♀ : Head, in profile.
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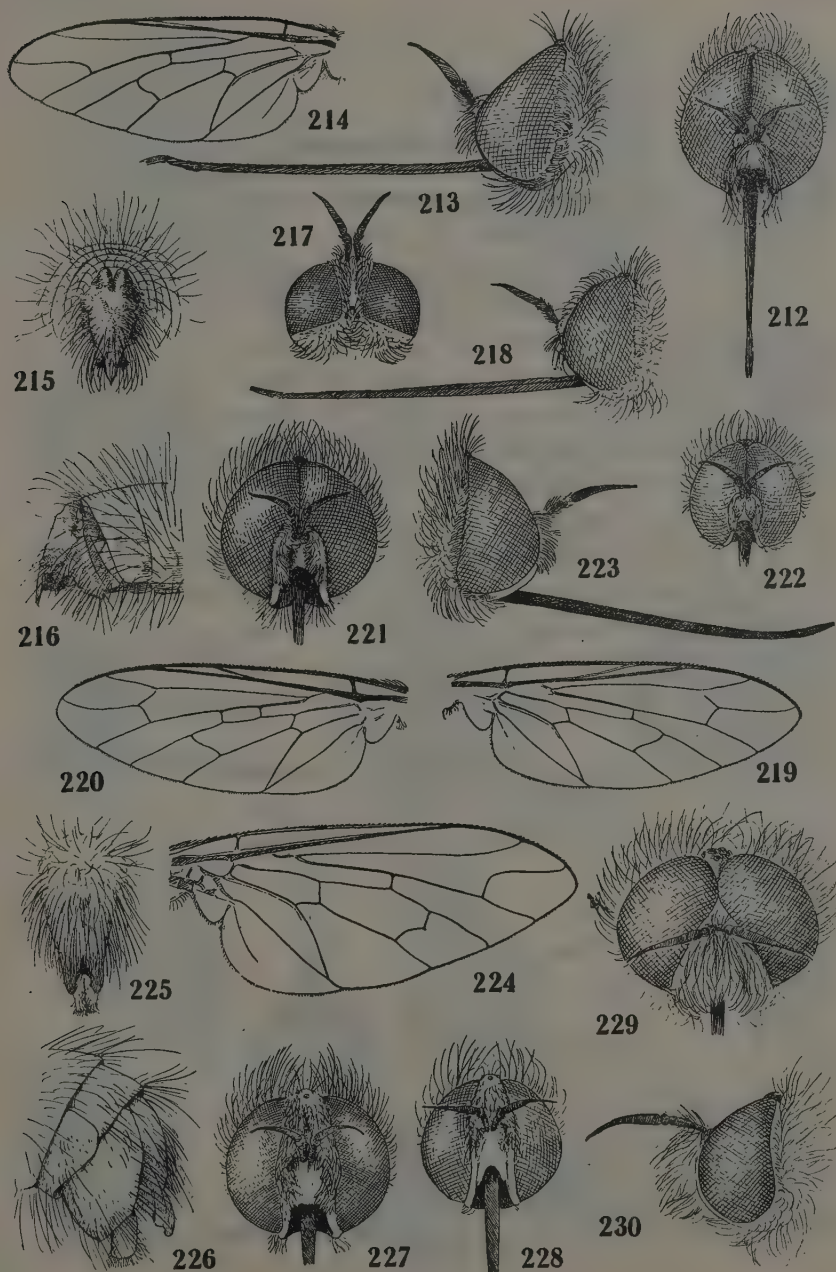
Explanation of Plate XII

- Fig. 197. — *Crocidium aegyptiacum* Bez., ♂ : Head, dorsal view.
Fig. 198. — *Crocidium aegyptiacum* Bez., ♂ : Head, in profile.
Fig. 199. — *Crocidium aegyptiacum* Bez., ♂ : Wing.
Fig. 200. — *Crocidium aegyptiacum* Bez., ♂ : Hypopygium, back view.
Fig. 201. — *Crocidium aegyptiacum* Bez., ♂ : Hypopygium, in profile.
Fig. 202. — *Crocidium aegyptiacum* Bez., ♀ : Head, dorsal view.
Fig. 203. — *Crocidium aegyptiacum* Bez., ♀ : Head, in profile.
Fig. 204. — *Crocidium aegyptiacum* Bez., ♀ : Ovipositor, in profile.
Fig. 205. — *Crocidium nudum* nov. spec., ♂ : Head, dorsal view.
Fig. 206. — *Crocidium nudum* nov. spec., ♂ : Head, in profile.
Fig. 207. — *Crocidium nudum* nov. spec., ♂ : Wing (right).
Fig. 208. — *Crocidium nudum* nov. spec., ♂ : Wing (left).
Fig. 209. — *Crocidium nudum* nov. spec., ♂ : Hypopygium, back view.
Fig. 210. — *Crocidium nudum* nov. spec., ♀ : Head, dorsal view.
Fig. 211. — *Crocidium nudum* nov. spec., ♀ : Head, in profile.
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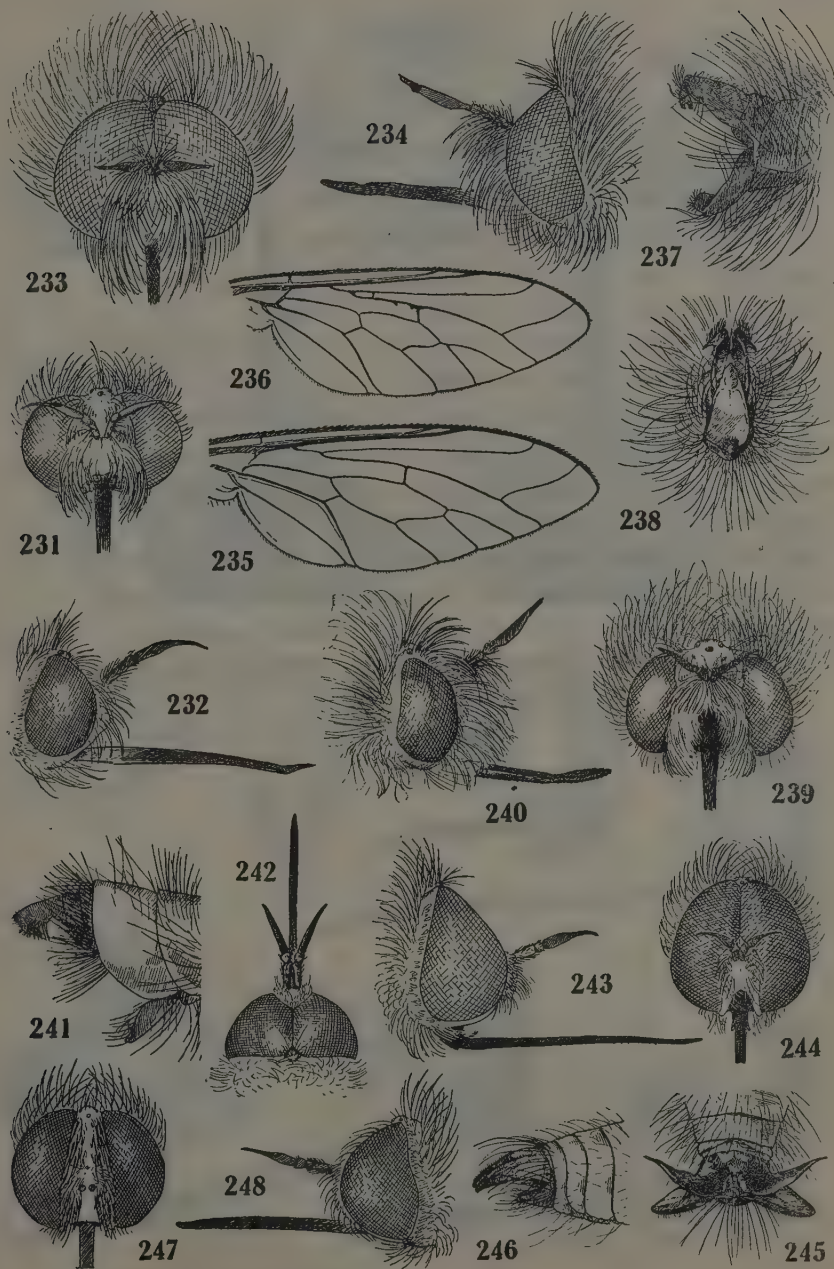
Explanation of Plate XIII

- Fig. 212. — *Geron garagniae* nov. spec., ♂ : Head, front view.
Fig. 213. — *Geron garagniae* nov. spec., ♂ : Head, in profile.
Fig. 214. — *Geron garagniae* nov. spec., ♂ : Wing.
Fig. 215. — *Geron garagniae* nov. spec., ♂ : Hypopygium, back view.
Fig. 216. — *Geron garagniae* nov. spec., ♂ : Hypopygium, side view.
Fig. 217. — *Geron garagniae* nov. spec., ♀ : Head, dorsal view.
Fig. 218. — *Geron garagniae* nov. spec., ♀ : Head, in profile.
Fig. 219. — *Geron garagniae* nov. spec., ♀ : Wing (right).
Fig. 220. — *Geron garagniae* nov. spec., ♀ : Wing (left).
Fig. 221. — *Geron gibbosus* Oliv., ♂ : Head, front view.
Fig. 222. — *Geron gibbosus* var. *halteralis* Meig., ♂ : Head, front view.
Fig. 223. — *Geron gibbosus* var. *halteralis* Meig., ♂ : Head, in profile.
Fig. 224. — *Geron gibbosus* var. *halteralis* Meig., ♂ : Wing.
Fig. 225. — *Geron gibbosus* var. *halteralis* Meig., ♂ : Hypopygium, dorsal view.
Fig. 226. — *Geron gibbosus* var. *halteralis* Meig., ♂ : Hypopygium, side view.
Fig. 227. — *Geron gibbosus* var. *halteralis* Meig., ♀ : Head, front view.
Fig. 228. — *Geron gibbosus* var. *halteralis* Meig., ♀ : Head, front view.
Fig. 229. — *Geron intonsus* Bez., ♂ : Head, front view.
Fig. 230. — *Geron intonsus* Bez., ♂ : Head, in profile.
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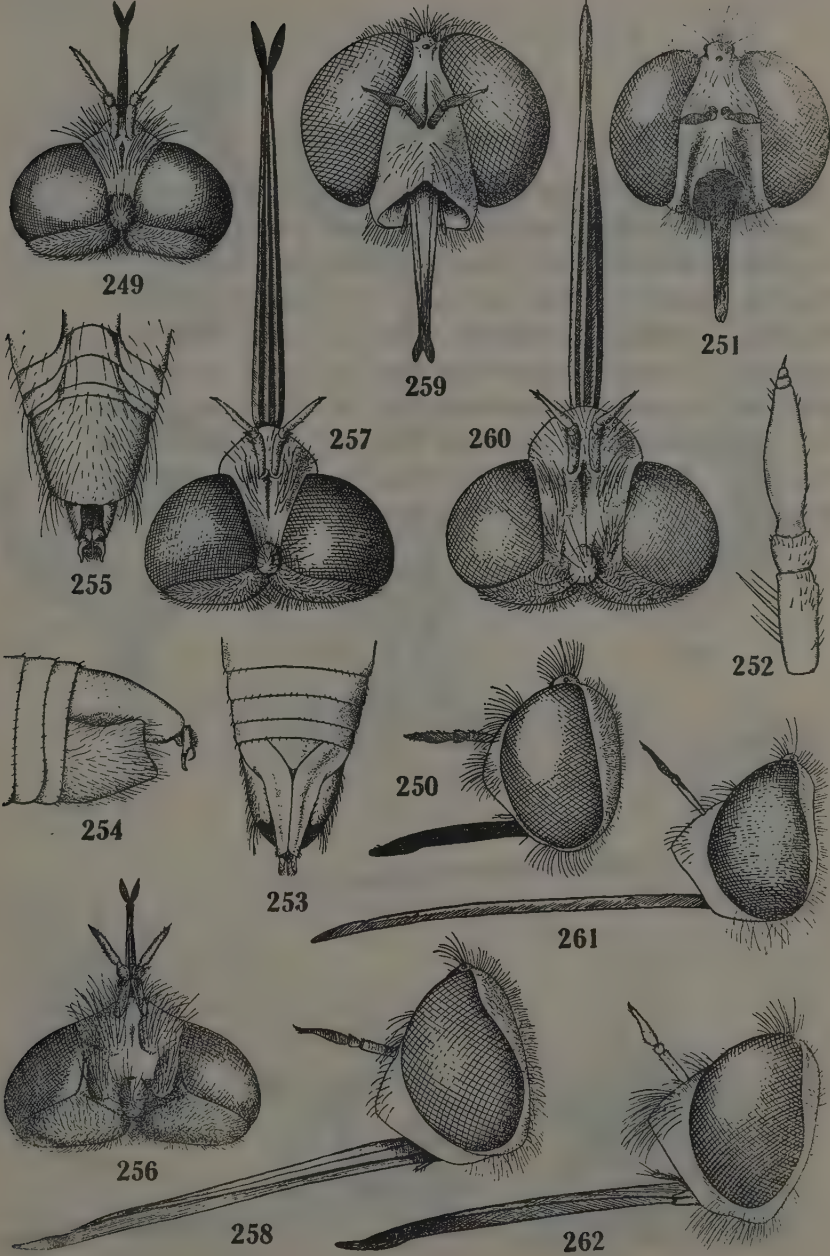
Explanation of Plate XIV

- Fig. 231. — *Geron intonsus* Bez., ♀ : Head, front view.
Fig. 232. — *Geron intonsus* Bez., ♀ : Head, in profile.
Fig. 233. — *Geron longibarbus* nov. spec., ♂ : Head, front view.
Fig. 234. — *Geron longibarbus* nov. spec., ♂ : Head, in profile.
Fig. 235. — *Geron longibarbus* nov. spec., ♂ : Wing.
Fig. 236. — *Geron longibarbus* nov. spec., ♂ : Wing.
Fig. 237. — *Geron longibarbus* nov. spec., ♂ : Hypopygium, side view.
Fig. 238. — *Geron longibarbus* nov. spec., ♂ : Hypopygium, back view.
Fig. 239. — *Geron longibarbus* nov. spec., ♀ : Head, front view.
Fig. 240. — *Geron longibarbus* nov. spec., ♀ : Head, in profile.
Fig. 241. — *Geron longibarbus* nov. spec., ♀ : Ovipositor.
Fig. 242. — *Geron longiventris* nov. spec., ♂ : Head, dorsal view.
Fig. 243. — *Geron longiventris* nov. spec., ♂ : Head, in profile.
Fig. 244. — *Geron longiventris* nov. spec., ♂ : Head, front view.
Fig. 245. — *Geron longiventris* nov. spec., ♂ : Hypopygium, ventral view.
Fig. 246. — *Geron longiventris* nov. spec., ♂ : Hypopygium, side view.
Fig. 247. — *Geron longiventris* nov. spec., ♀ : Head, front view.
Fig. 248. — *Geron longiventris* nov. spec., ♀ : Head, in profile.
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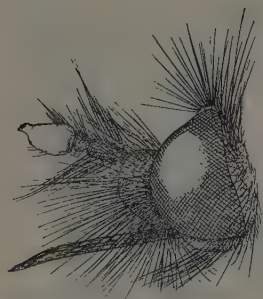
Explanation of Plate XV

- Fig. 249. — *Sinaia Kneuckeri* Beck., ♂ : Head, dorsal view.
Fig. 250. — *Sinaia Kneuckeri* Beck., ♂ : Head, in profile.
Fig. 251. — *Sinaia Kneuckeri* Beck., ♂ : Head, front view.
Fig. 252. — *Sinaia Kneuckeri* Beck., ♂ : Antenna.
Fig. 253. — *Sinaia Kneuckeri* Beck., ♂ : Hypopygium, dorsal view.
Fig. 254. — *Sinaia Kneuckeri* Beck., ♂ : Hypopygium, side view.
Fig. 255. — *Sinaia Kneuckeri* Beck., ♂ : Hypopygium, ventral view.
Fig. 256. — *Sinaia Kneuckeri* Beck., ♀ : Head, dorsal view.
Fig. 257. — *Amictus aegyptiacus* Param., ♂ : Head, dorsal view.
Fig. 258. — *Amictus aegyptiacus* Param., ♂ : Head, in profile.
Fig. 259. — *Amictus aegyptiacus* Param., ♂ : Head, front view.
Fig. 260. — *Amictus aegyptiacus* Param., ♀ : Head, dorsal view.
Fig. 261. — *Amictus gebeli* nov. spec., ♂ : Head, in profile.
Fig. 262. — *Amictus pulchellus* Macq., ♂ : Head, in profile.
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Explanation of Plate XVI

- Fig. 263. — *Amictus pulchellus* Macq., ♂ : Head, front view.
Fig. 264. — *Amictus setosus* Lw., ♂ : Head, in profile.
Fig. 265. — *Amictus setosus* Lw., ♂ : Head, front view.
Fig. 266. — *Amictus Shafiki* nov. spec., ♂ : Head, in profile.
Fig. 267. — *Conophorus aegyptiacus* Bez., ♂ : Head, dorsal view.
Fig. 268. — *Conophorus aegyptiacus* Bez., ♂ : Head, in profile.
Fig. 269. — *Conophorus aegyptiacus* Bez., ♀ : Head, dorsal view.
Fig. 270. — *Prorachthes longirostris* Bez., ♂ : Head, dorsal view.
Fig. 271. — *Prorachthes longirostris* Bez., ♂ : Head, in profile.
Fig. 272. — *Prorachthes longirostris* Bez., ♀ : Head, dorsal view.
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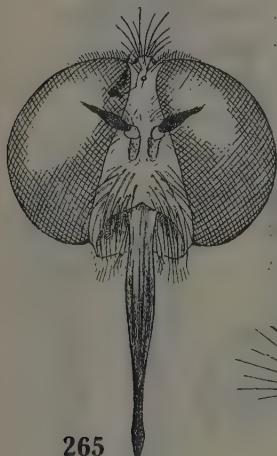
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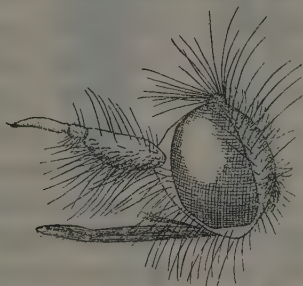
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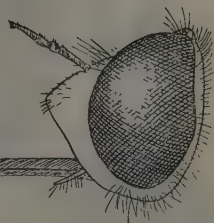
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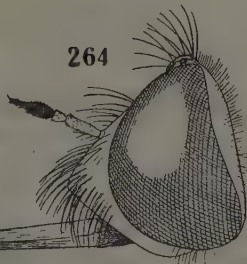
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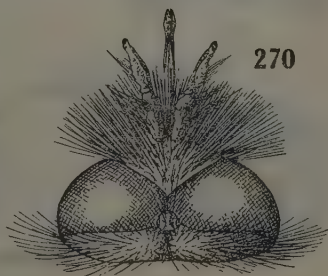
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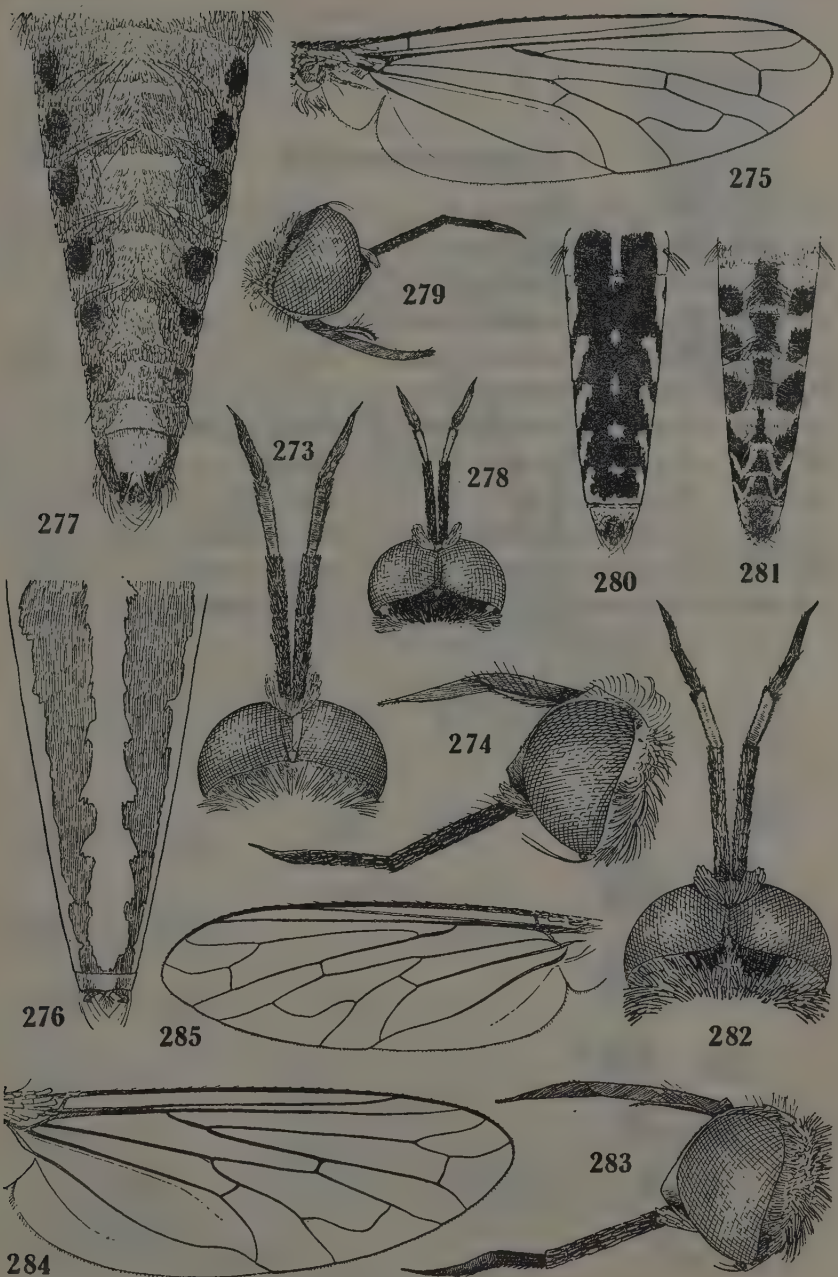
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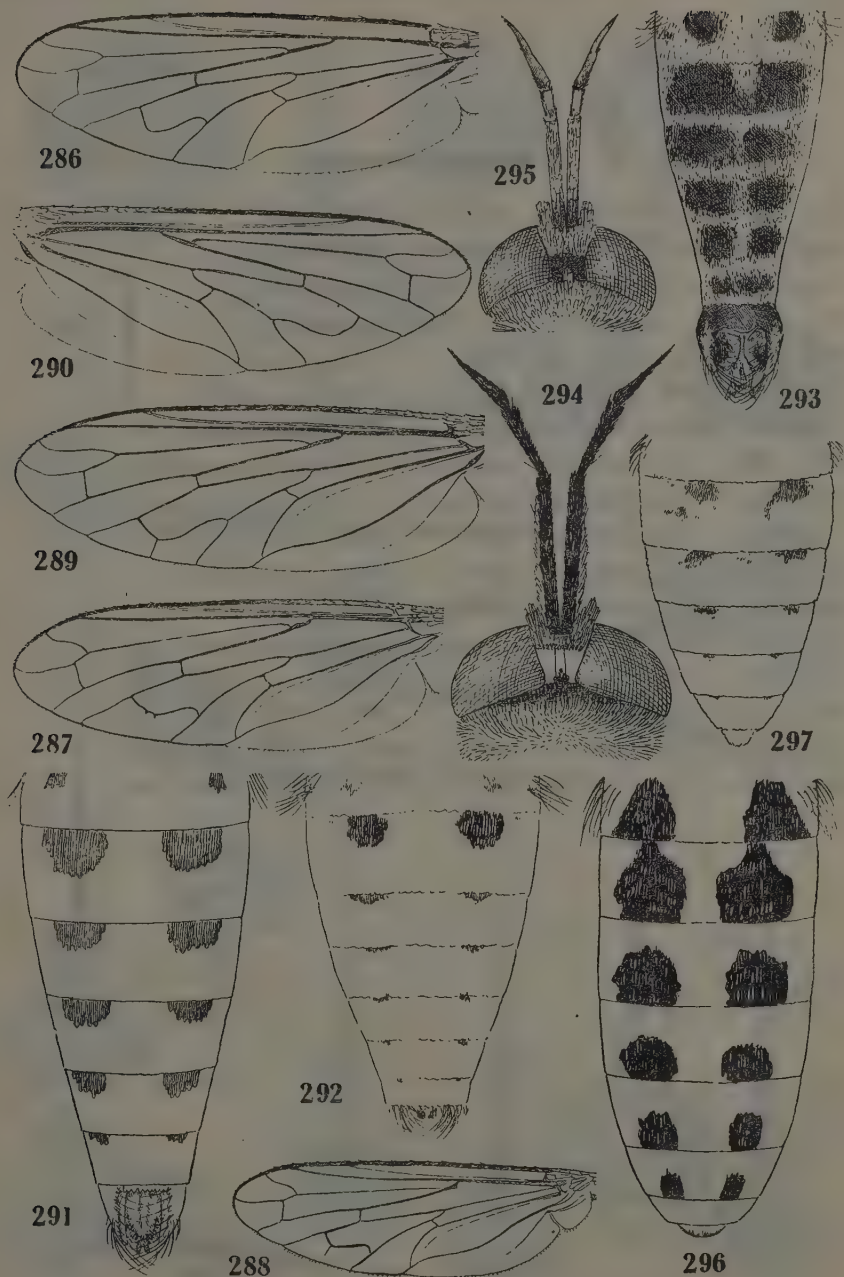
Explanation of Plate XVII

- Fig. 273. — *Toxophora aegyptiaca* nov. spec., ♂ : Head, dorsal view.
Fig. 274. — *Toxophora aegyptiaca* nov. spec., ♂ : Head, in profile.
Fig. 275. — *Toxophora aegyptiaca* nov. spec., ♂ : Wing.
Fig. 276. — *Toxophora aegyptiaca* nov. spec., ♂ : Abdomen, dorsal view.
Fig. 277. — *Toxophora aegyptiaca* nov. spec., ♂ : Venter.
Fig. 278. — *Toxophora Leyladea* nov. spec., ♂ : Head, dorsal view.
Fig. 279. — *Toxophora Leyladea* nov. spec., ♂ : Head, in profile.
Fig. 280. — *Toxophora Leyladea* nov. spec., ♂ : Abdomen, dorsal view.
Fig. 281. — *Toxophora Leyladea* nov. spec., ♂ : Venter.
Fig. 282. — *Toxophora maculata* Rossi, ♂ : Head, dorsal view.
Fig. 283. — *Toxophora maculata* Rossi, ♂ : Head, in profile.
Fig. 284. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 285. — *Toxophora maculata* Rossi, ♂ : Wing.
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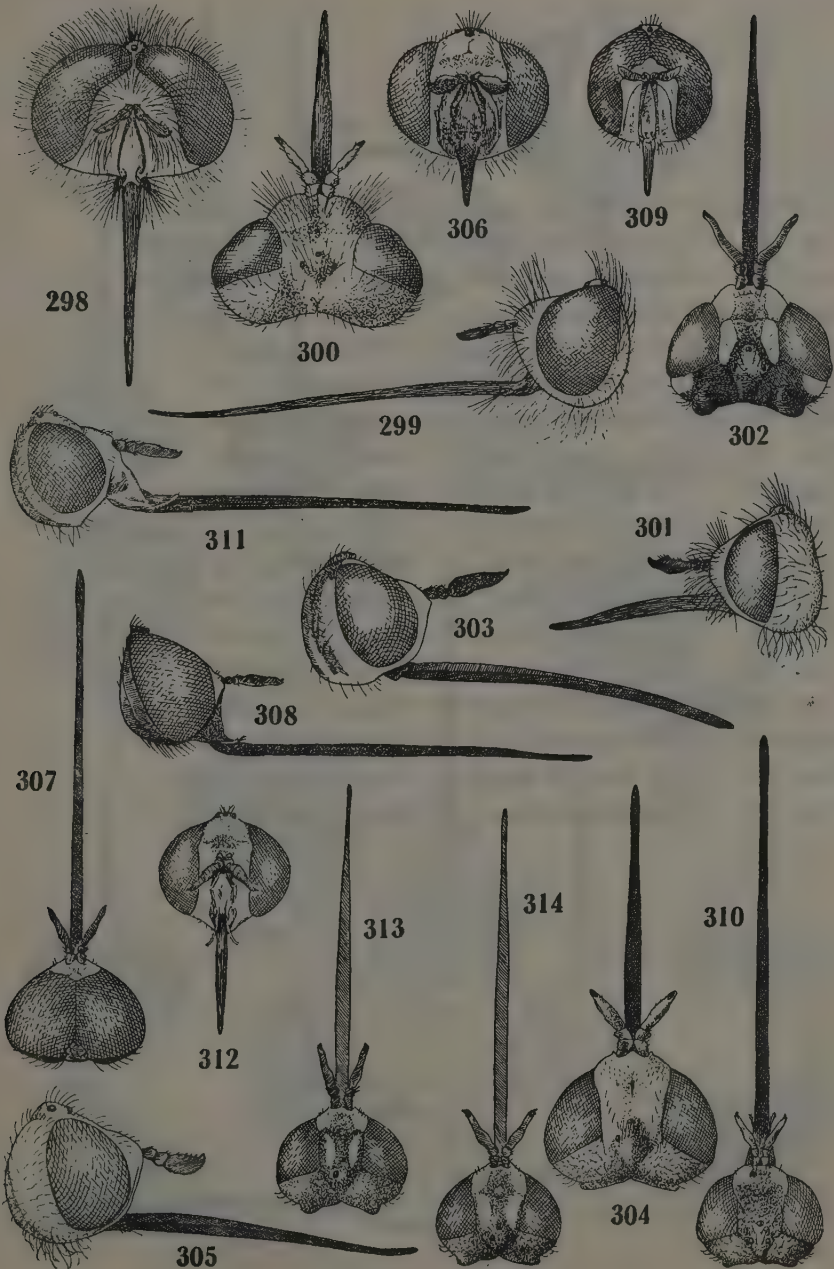
Explanation of Plate XVIII

- Fig. 286. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 287. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 288. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 289. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 290. — *Toxophora maculata* Rossi, ♂ : Wing.
Fig. 291. — *Toxophora maculata* Rossi, ♀ : Abdomen, dorsal view.
Fig. 292. — *Toxophora maculata* Rossi, ♀ : Abdomen, dorsal view.
Fig. 293. — *Toxophora maculata* Rossi, ♀ : Abdomen, dorsal view.
Fig. 294. — *Toxophora maculata* Rossi, ♀ (*type*) : Head, dorsal view.
Fig. 295. — *Toxophora maculata* Rossi, ♀ (*var.*) : Head, dorsal view.
Fig. 296. — *Toxophora maculata* Rossi, ♀ (*type*) : Abdomen, dorsal view.
Fig. 297. — *Toxophora maculata* Rossi, ♀ (*var.*) : Abdomen, dorsal view.
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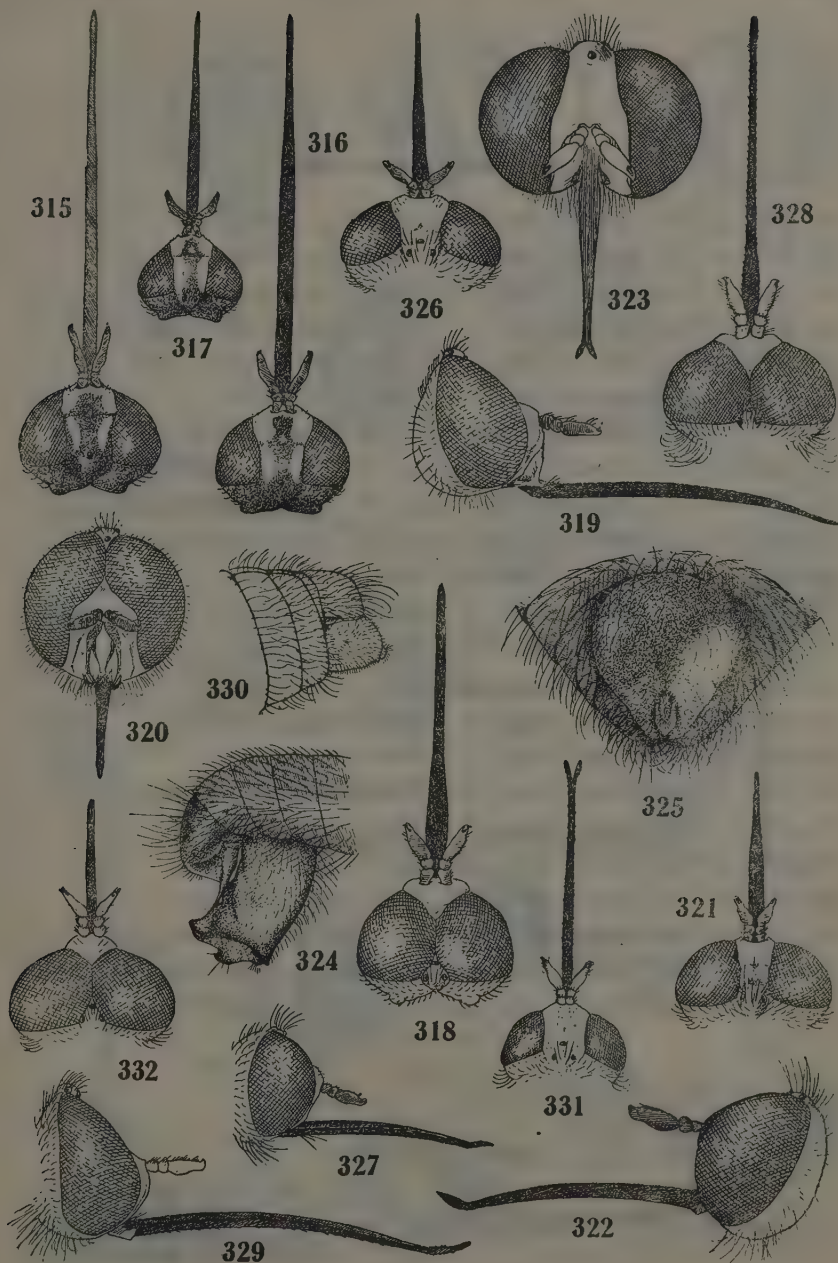
Explanation of Plate XIX

- Fig. 298. — *Usia aurata* F., ♂ : Head, front view.
Fig. 299. — *Usia aurata* F., ♂ : Head, in profile.
Fig. 300. — *Usia aurata* F., ♀ : Head, dorsal view.
Fig. 301. — *Usia aurata* F., ♀ : Head, in profile.
Fig. 302. — *Usia bicolor* nov. spec., ♀ : Head, dorsal view.
Fig. 303. — *Usia bicolor* nov. spec., ♀ : Head, in profile.
Fig. 304. — *Usia deserticola* nov. spec., ♀ : Head, dorsal view.
Fig. 305. — *Usia deserticola* nov. spec., ♀ : Head, in profile.
Fig. 306. — *Usia deserticola* nov. spec., ♀ : Head, front view.
Fig. 307. — *Usia elbae* nov. spec., ♂ : Head, dorsal view.
Fig. 308. — *Usia elbae* nov. spec., ♂ : Head, in profile.
Fig. 309. — *Usia elbae* nov. spec., ♂ : Head, front view.
Fig. 310. — *Usia elbae* nov. spec., ♀ : Head, dorsal view.
Fig. 311. — *Usia elbae* nov. spec., ♀ : Head, in profile.
Fig. 312. — *Usia elbae* nov. spec., ♀ : Head, front view.
Fig. 313. — *Usia elbae* nov. spec., ♀ (*var.*) : Head, dorsal view.
Fig. 314. — *Usia elbae* nov. spec., ♀ (*var.*) : Head, dorsal view.
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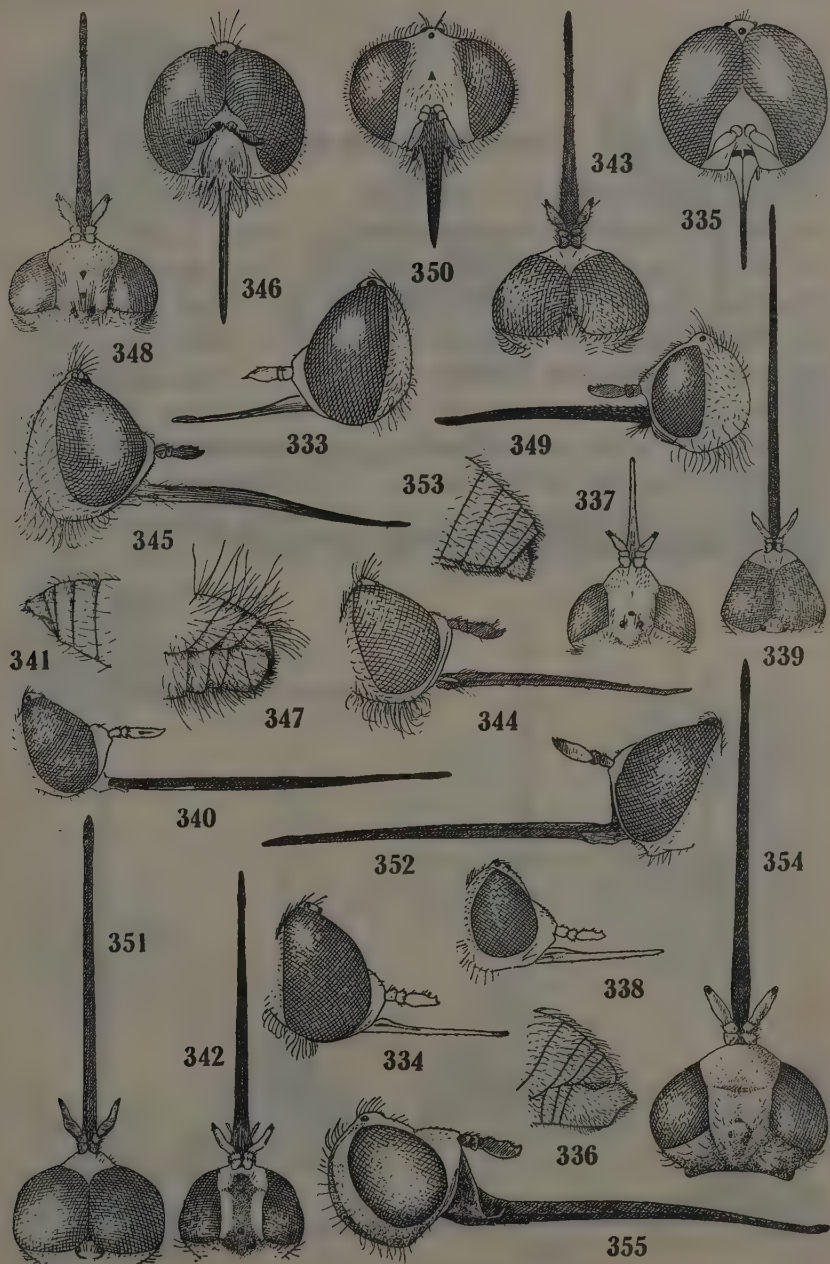
Explanation of Plate XX

- Fig. 315. — *Usia elbae* nov. spec., ♀ (*var.*) : Head, dorsal view.
Fig. 316. — *Usia elbae* nov. spec., ♀ (*var.*) : Head, dorsal view.
Fig. 317. — *Usia elbae* nov. spec., ♀ (*var.*) : Head, dorsal view.
Fig. 318. — *Usia grisea* nov. spec., ♂ : Head, dorsal view.
Fig. 319. — *Usia grisea* nov. spec., ♂ : Head, in profile.
Fig. 320. — *Usia grisea* nov. spec., ♂ : Head, front view.
Fig. 321. — *Usia ignorata* Beck., ♂ : Head, dorsal view.
Fig. 322. — *Usia ignorata* Beck., ♂ : Head, in profile.
Fig. 323. — *Usia ignorata* Beck., ♂ : Head, front view.
Fig. 324. — *Usia ignorata* Beck., ♂ : Hypopygium, side view.
Fig. 325. — *Usia ignorata* Beck., ♂ : Hypopygium, ventral view.
Fig. 326. — *Usia ignorata* Beck., ♀ : Head, dorsal view.
Fig. 327. — *Usia ignorata* Beck., ♀ : Head, in profile.
Fig. 328. — *Usia inornata* Engel, ♂ : Head, dorsal view.
Fig. 329. — *Usia inornata* Engel, ♂ : Head, in profile.
Fig. 330. — *Usia inornata* Engel, ♂ : Hypopygium, side view.
Fig. 331. — *Usia inornata* Engel, ♀ : Head, dorsal view.
Fig. 332. — *Usia lutescens* Bez., ♂ : Head, dorsal view.
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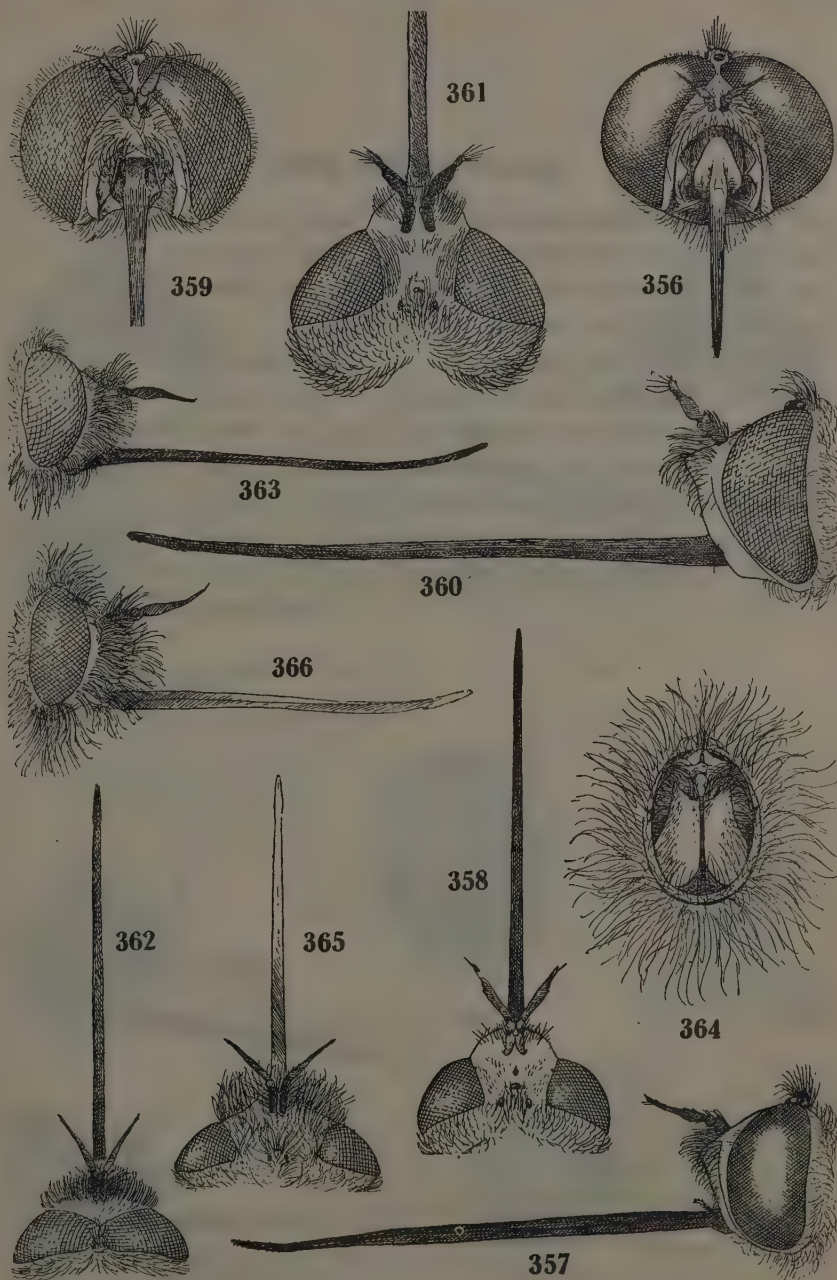
Explanation of Plate XXI

- Fig. 333. — *Usia lutescens* Bez., ♂ : Head, in profile.
Fig. 334. — *Usia lutescens* Bez., ♂ : Head, in profile.
Fig. 335. — *Usia lutescens* Bez., ♂ : Head, front view.
Fig. 336. — *Usia lutescens* Bez., ♂ : Hypopygium, side view.
Fig. 337. — *Usia lutescens* Bez., ♀ : Head, dorsal view.
Fig. 338. — *Usia lutescens* Bez., ♀ : Head, in profile.
Fig. 339. — *Usia minusculus* nov. spec., ♂ : Head, dorsal view.
Fig. 340. — *Usia minusculus* nov. spec., ♂ : Head, in profile.
Fig. 341. — *Usia minusculus* nov. spec., ♂ : Hypopygium, side view.
Fig. 342. — *Usia minusculus* nov. spec., ♀ : Head, dorsal view.
Fig. 343. — *Usia ornata* Engel, ♂ : Head, dorsal view.
Fig. 344. — *Usia ornata* Engel, ♂ : Head, in profile.
Fig. 345. — *Usia ornata* Engel, ♂ : Head, in profile.
Fig. 346. — *Usia ornata* Engel, ♂ : Head, front view.
Fig. 347. — *Usia ornata* Engel, ♂ : Hypopygium, side view.
Fig. 348. — *Usia ornata* Engel, ♀ : Head, dorsal view.
Fig. 349. — *Usia ornata* Engel, ♀ : Head, in profile.
Fig. 350. — *Usia ornata* Engel, ♀ : Head, front view.
Fig. 351. — *Usia parvula* nov. spec., ♂ : Head, dorsal view.
Fig. 352. — *Usia parvula* nov. spec., ♂ : Head, in profile.
Fig. 353. — *Usia parvula* nov. spec., ♂ : Hypopygium, side view.
Fig. 354. — *Usia Tewfikii* nov. spec., ♀ : Head, dorsal view.
Fig. 355. — *Usia Tewfikii* nov. spec., ♀ : Head, in profile.
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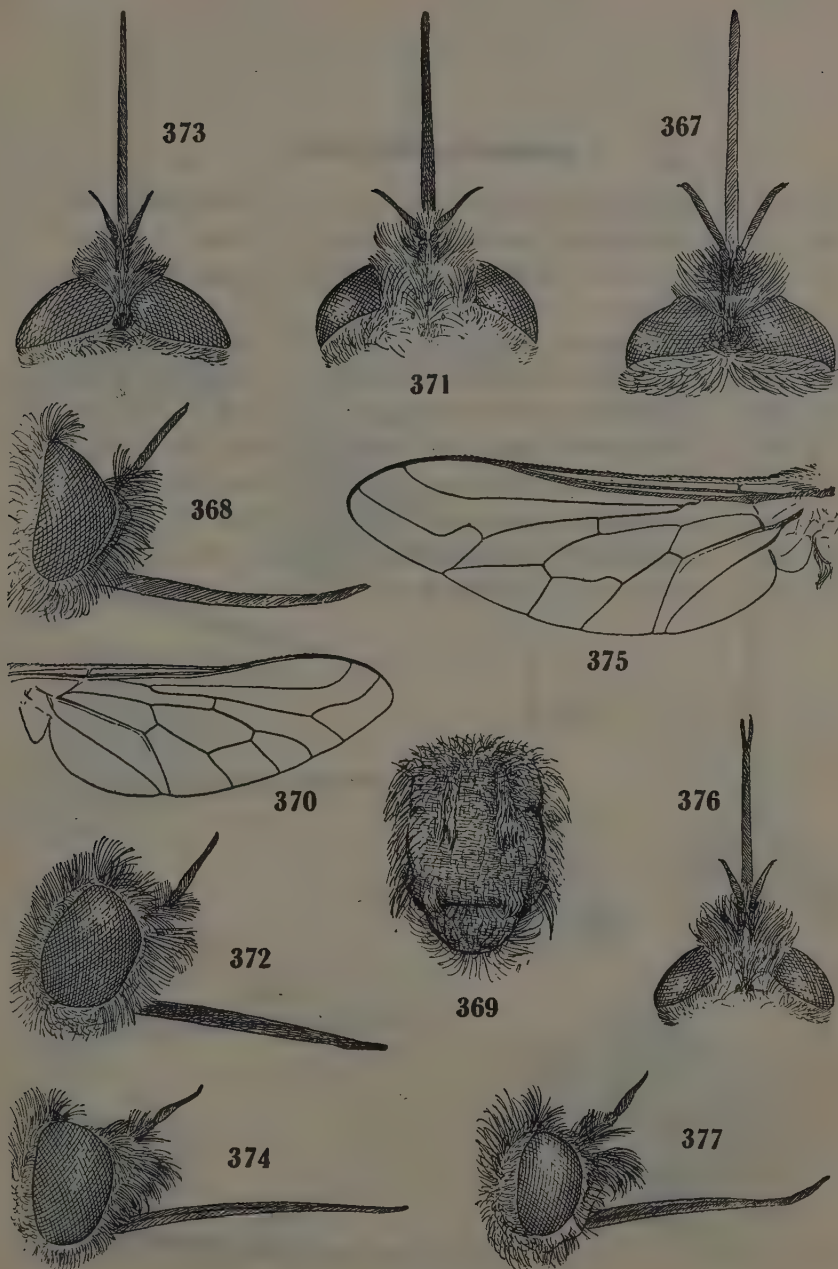
Explanation of Plate XXII

- Fig. 356. — *Legnotomyia fascipennis* Bez., ♂ : Head, front view.
Fig. 357. — *Legnotomyia fascipennis* Bez., ♂ : Head, in profile.
Fig. 358. — *Legnotomyia fascipennis* Bez., ♀ : Head, dorsal view.
Fig. 359. — *Legnotomyia Leyladea* nov. spec., ♂ : Head, front view.
Fig. 360. — *Legnotomyia Leyladea* nov. spec., ♂ : Head, in profile.
Fig. 361. — *Legnotomyia Leyladea* nov. spec., ♀ : Head, dorsal view.
Fig. 362. — *Dischistus multisetosus* Lw., ♂ : Head, dorsal view.
Fig. 363. — *Dischistus multisetosus* Lw., ♂ : Head, in profile.
Fig. 364. — *Dischistus multisetosus* Lw., ♂ : Hypopygium, back view.
Fig. 365. — *Dischistus multisetosus* Lw., ♀ : Head, dorsal view.
Fig. 366. — *Dischistus multisetosus* Lw., ♀ : Head, in profile.
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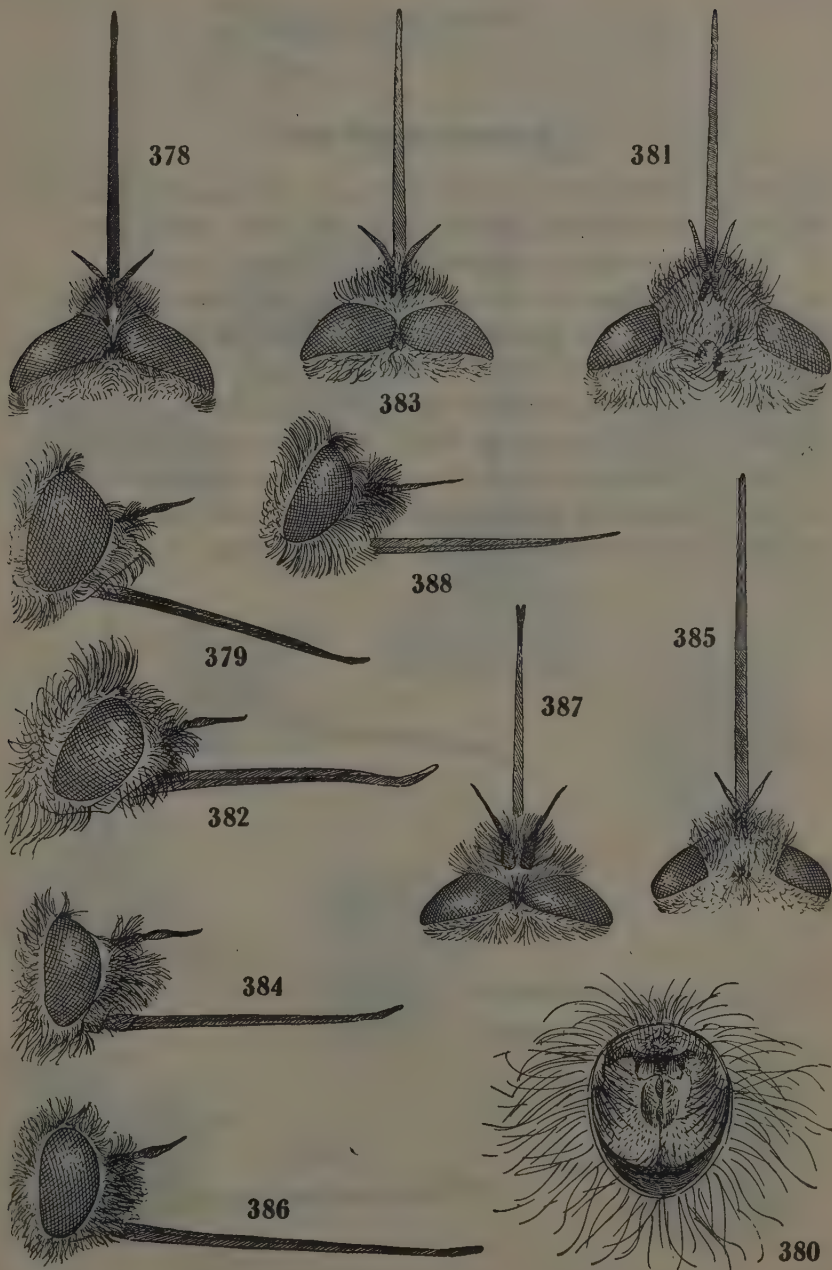
Explanation of Plate XXIII

- Fig. 367. — *Dischistus trigonus* Bez., ♂ : Head, dorsal view.
Fig. 368. — *Dischistus trigonus* Bez., ♂ : Head, in profile.
Fig. 369. — *Dischistus trigonus* Bez., ♂ : Thorax, dorsal view.
Fig. 370. — *Dischistus trigonus* Bez., ♂ : Wing.
Fig. 371. — *Dischistus trigonus* Bez., ♀ : Head, dorsal view.
Fig. 372. — *Dischistus trigonus* Bez., ♀ : Head, in profile.
Fig. 373. — *Acanthogeron auripilis* nov. spec., ♂ : Head, dorsal view.
Fig. 374. — *Acanthogeron auripilis* nov. spec., ♂ : Head, in profile.
Fig. 375. — *Acanthogeron auripilis* nov. spec., ♂ : Wing.
Fig. 376. — *Acanthogeron auripilis* nov. spec., ♀ : Head, dorsal view.
Fig. 377. — *Acanthogeron auripilis* nov. spec., ♀ : Head, in profile.
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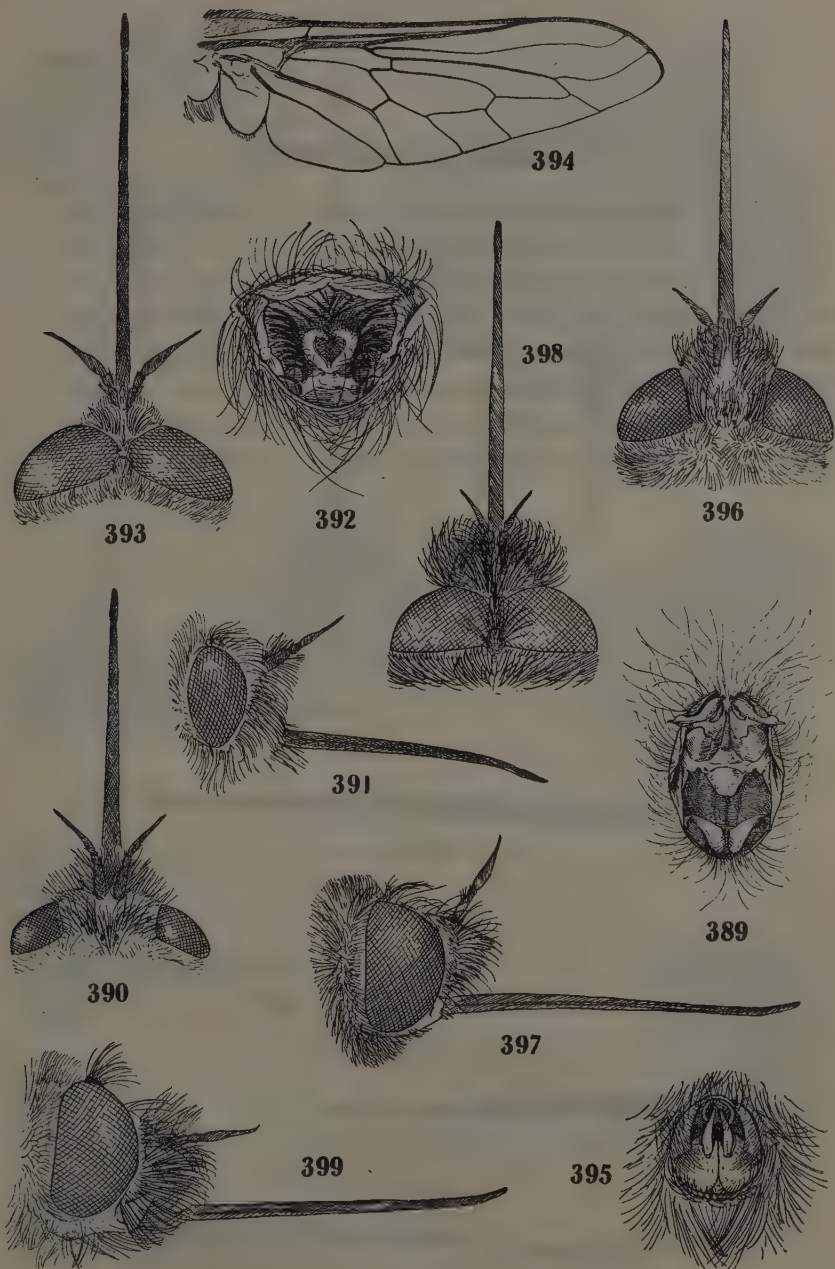
Explanation of Plate XXIV

- Fig. 378. — *Acanthogeron Blanchei* nov. spec., ♂ : Head, dorsal view.
Fig. 379. — *Acanthogeron Blanchei* nov. spec., ♂ : Head, in profile.
Fig. 380. — *Acanthogeron Blanchei* nov. spec., ♂ : Hypopygium, from beneath.
Fig. 381. — *Acanthogeron Blanchei* nov. spec., ♀ : Head, dorsal view.
Fig. 382. — *Acanthogeron Blanchei* nov. spec., ♀ : Head, in profile.
Fig. 383. — *Acanthogeron grandis* nov. spec., ♂ : Head, dorsal view.
Fig. 384. — *Acanthogeron grandis* nov. spec., ♂ : Head, in profile.
Fig. 385. — *Acanthogeron grandis* nov. spec., ♀ : Head, dorsal view.
Fig. 386. — *Acanthogeron grandis* nov. spec., ♀ : Head, in profile.
Fig. 387. — *Acanthogeron separatus* Beck., ♂ : Head, dorsal view.
Fig. 388. — *Acanthogeron separatus* Beck., ♂ : Head, in profile.
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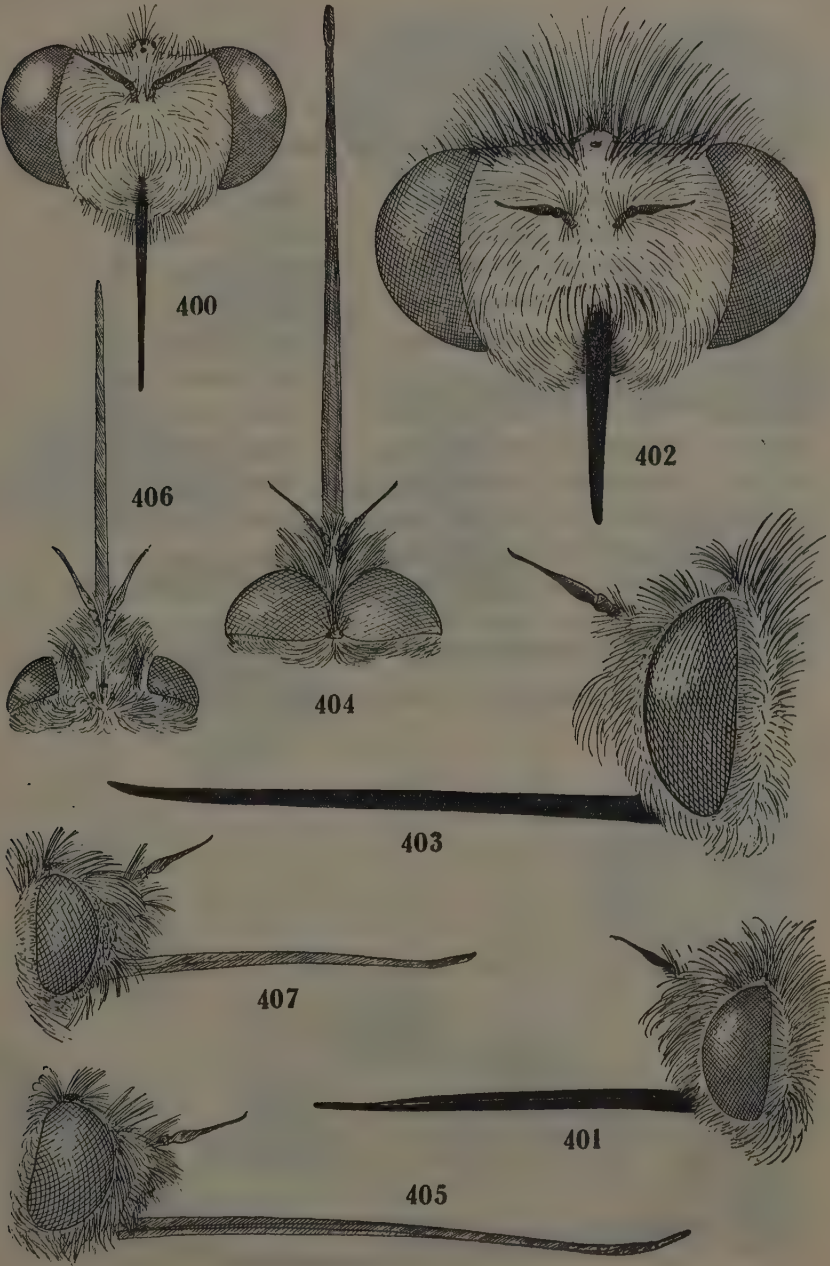
Explanation of Plate XXV

- Fig. 389. — *Acanthageron separatus* Beck., ♂ : Hypopygium, back view.
Fig. 390. — *Acanthageron separatus* Beck., ♀ : Head, dorsal view.
Fig. 391. — *Acanthageron separatus* Beck., ♀ : Head, in profile.
Fig. 392. — *Acanthageron separatus* Beck., ♀ : Ovipositor, back view.
Fig. 393. — *Systoechus gradatus* Wied., ♂ : Head, dorsal view.
Fig. 394. — *Systoechus gradatus* Wied., ♂ : Wing.
Fig. 395. — *Systoechus gradatus* Wied., ♂ : Hypopygium, back view.
Fig. 396. — *Systoechus gradatus* Wied., ♀ : Head, dorsal view.
Fig. 397. — *Systoechus gradatus* Wied., ♀ : Head, in profile.
Fig. 398. — *Systoechus sinaiticus* nov. spec., ♂ : Head, dorsal view.
Fig. 399. — *Systoechus sinaiticus* nov. spec., ♂ : Head, in profile.
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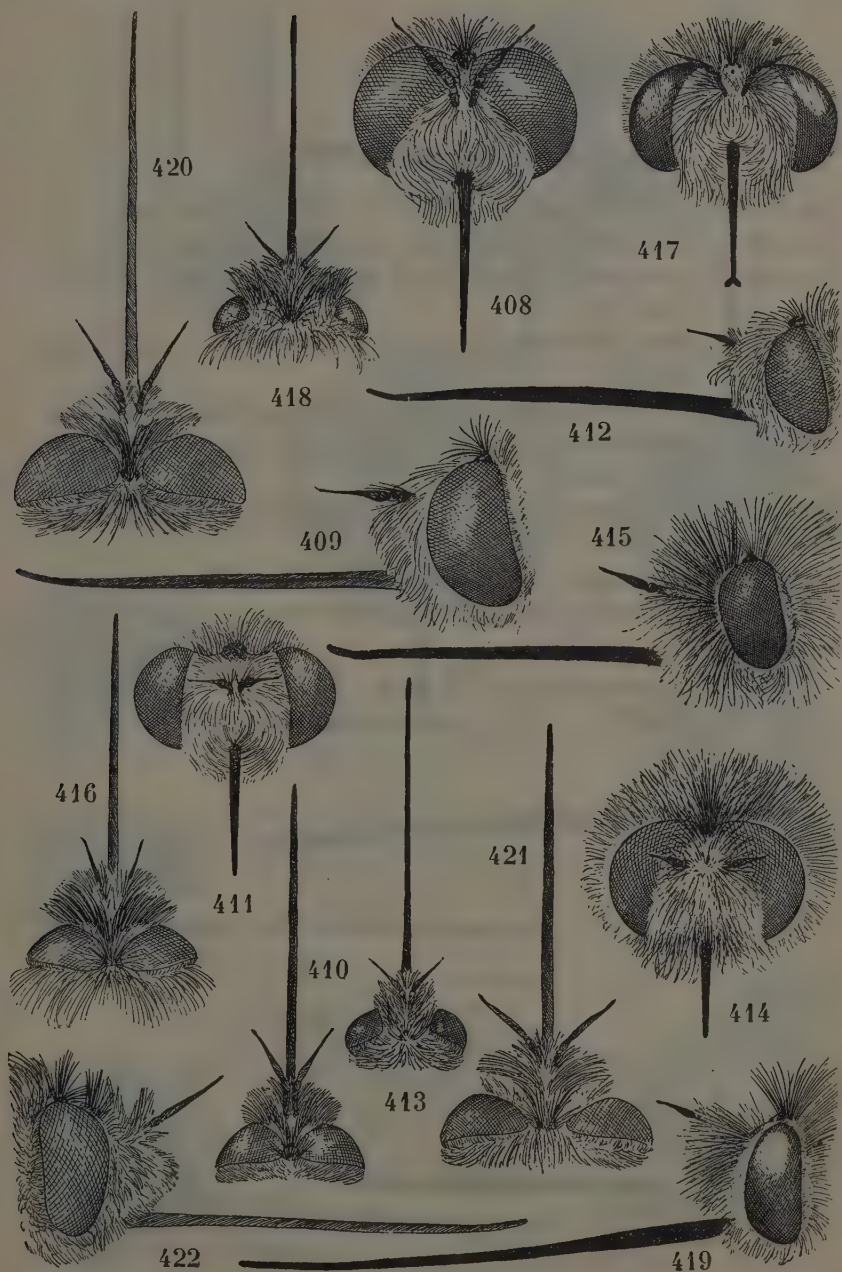
Explanation of Plate XXVI

- Fig. 400. — *Anastoechus albopectinatus* Beck., ♂ : Head, front view.
Fig. 401. — *Anastoechus albopectinatus* Beck., ♂ : Head, in profile.
Fig. 402. — *Anastoechus albopectinatus* Beck., ♀ : Head, front view.
Fig. 403. — *Anastoechus albopectinatus* Beck., ♀ : Head, in profile.
Fig. 404. — *Anastoechus aurifrons* nov. spec., ♂ : Head, dorsal view.
Fig. 405. — *Anastoechus aurifrons* nov. spec., ♂ : Head, in profile.
Fig. 406. — *Anastoechus aurifrons* nov. spec., ♀ : Head, dorsal view.
Fig. 407. — *Anastoechus aurifrons* nov. spec., ♀ : Head, in profile.
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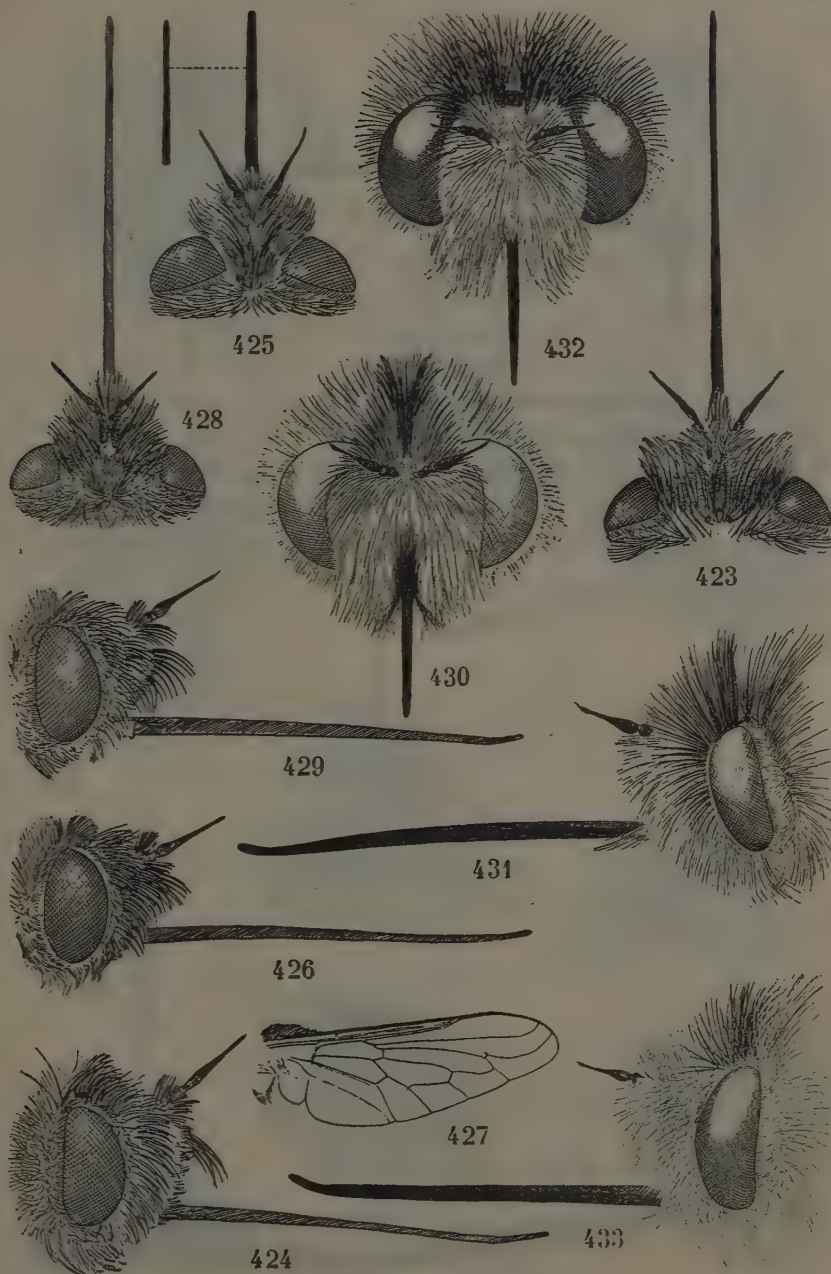
Explanation of Plate XXVII

- Fig. 408. — *Anastoechus Bahirae* Beck., ♂ : Head, front view.
Fig. 409. — *Anastoechus Bahirae* Beck., ♂ : Head, in profile.
Fig. 410. — *Anastoechus Bahirae* Beck., ♂ : Head, dorsal view.
Fig. 411. — *Anastoechus Bahirae* Beck., ♀ : Head, front view.
Fig. 412. — *Anastoechus Bahirae* Beck., ♀ : Head, in profile.
Fig. 413. — *Anastoechus Bahirae* Beck., ♀ : Head, dorsal view.
Fig. 414. — *Anastoechus exalbidus* Meig., ♂ : Head, front view.
Fig. 415. — *Anastoechus exalbidus* Meig., ♂ : Head, in profile.
Fig. 416. — *Anastoechus exalbidus* Meig., ♂ : Head, dorsal view.
Fig. 417. — *Anastoechus exalbidus* Meig., ♀ : Head, front view.
Fig. 418. — *Anastoechus exalbidus* Meig., ♀ : Head, dorsal view.
Fig. 419. — *Anastoechus exalbidus* Meig., ♀ : Head, in profile.
Fig. 420. — *Anastoechus niveus* Herm., ♂ : Head, dorsal view.
Fig. 421. — *Anastoechus niveus* Herm., ♂ : Head, dorsal view.
Fig. 422. — *Anastoechus niveus* Herm., ♂ : Head, in profile.
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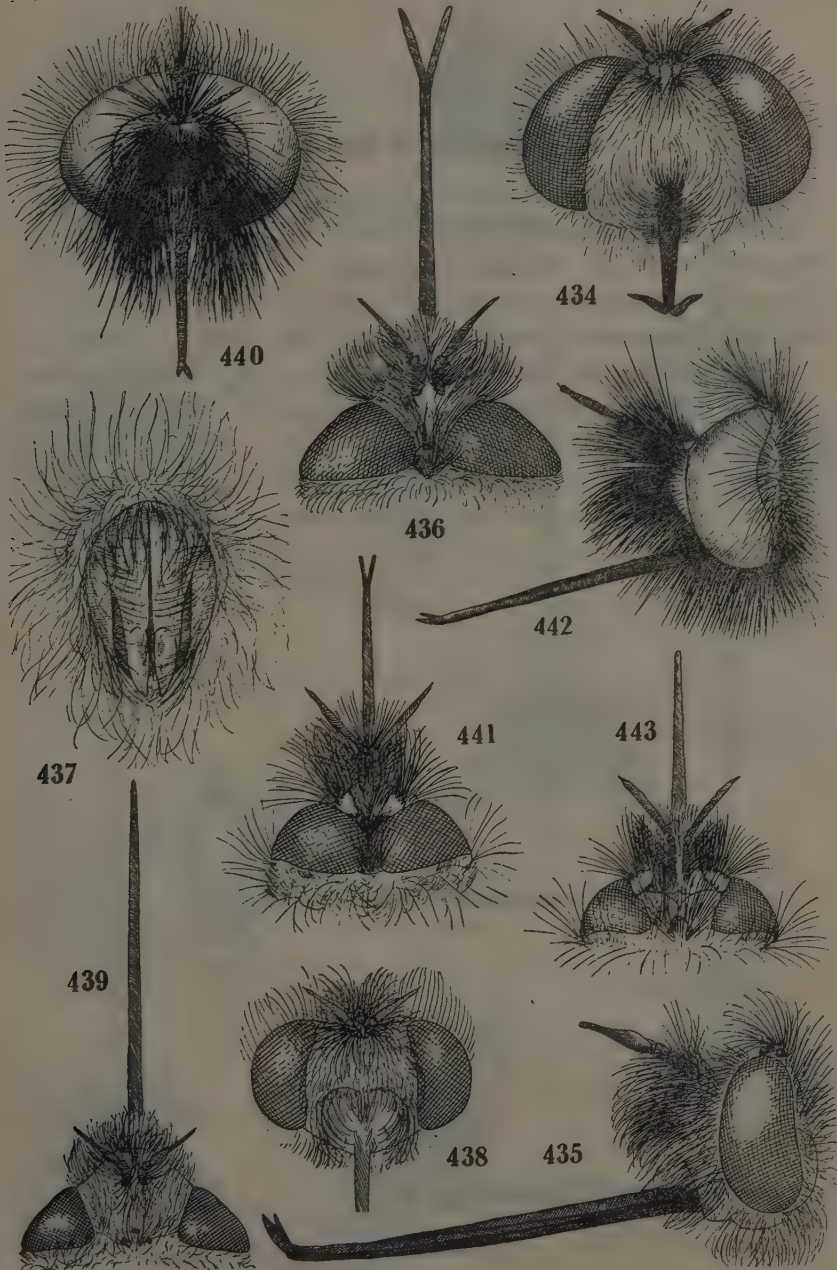
Explanation of Plate XXVIII

- Fig. 423. — *Anastoechus niveus* Herm., ♀ : Head, dorsal view.
Fig. 424. — *Anastoechus niveus* Herm., ♀ : Head, in profile.
Fig. 425. — *Anastoechus trisignatus* var. *retrogradus* Beck., ♂ : Head, dorsal view.
Fig. 426. — *Anastoechus trisignatus* var. *retrogradus* Beck., ♂ : Head, in profile.
Fig. 427. — *Anastoechus trisignatus* var. *retrogradus* Beck., ♂ : Wing.
Fig. 428. — *Anastoechus trisignatus* var. *retrogradus* Beck., ♀ : Head, dorsal view.
Fig. 429. — *Anastoechus trisignatus* var. *retrogradus* Beck., ♀ : Head, in profile.
Fig. 430. — *Anastoechus stramineus* Beck., ♂ : Head, front view.
Fig. 431. — *Anastoechus stramineus* Beck., ♂ : Head, in profile.
Fig. 432. — *Anastoechus stramineus* Beck., ♀ : Head, front view.
Fig. 433. — *Anastoechus stramineus* Beck., ♀ : Head, in profile.
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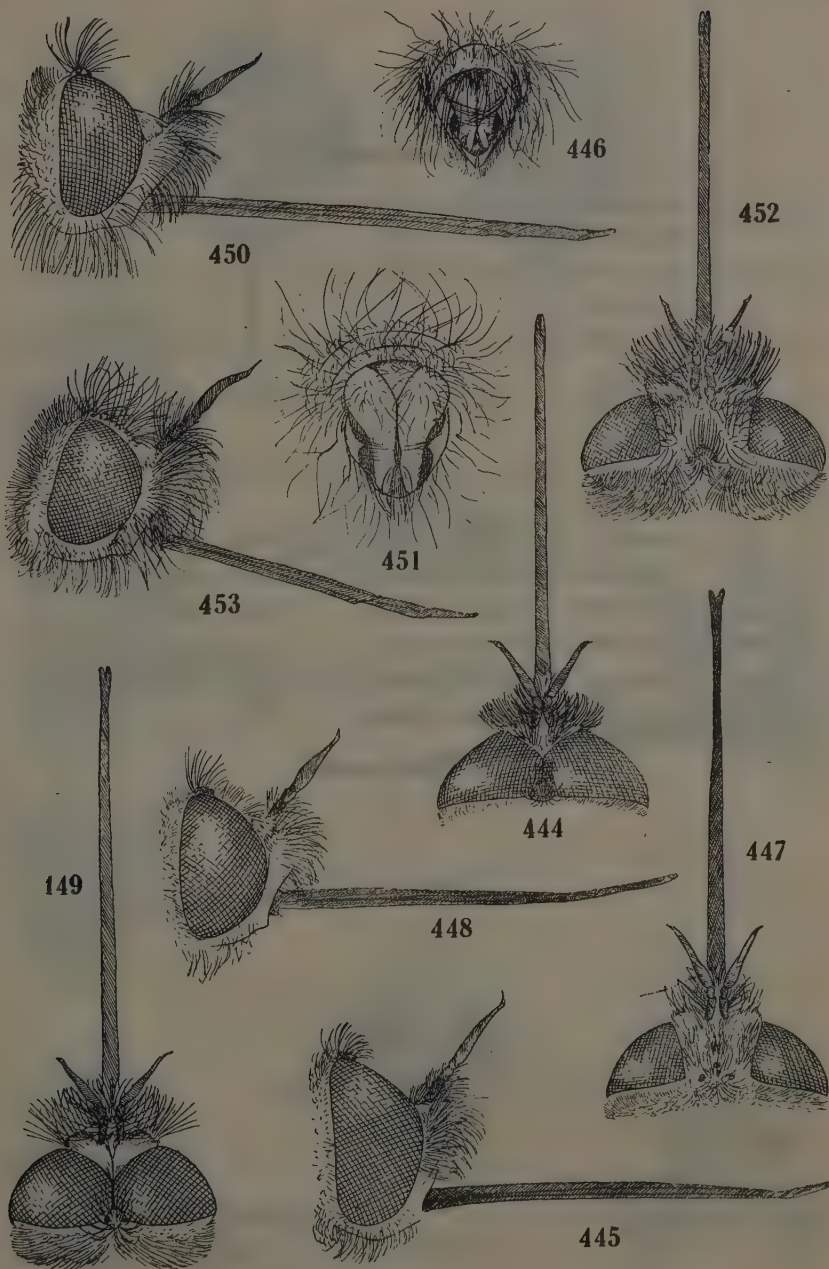
Explanation of Plate XXIX

- Fig. 434. — *Bombylius androgynus* Lw., ♂ : Head, front view.
Fig. 435. — *Bombylius androgynus* Lw., ♂ : Head, in profile.
Fig. 436. — *Bombylius androgynus* Lw., ♂ : Head, dorsal view.
Fig. 437. — *Bombylius androgynus* Lw., ♂ : Hypopygium.
Fig. 438. — *Bombylius androgynus* Lw., ♀ : Head, front view.
Fig. 439. — *Bombylius androgynus* Lw., ♀ : Head, in profile.
Fig. 440. — *Bombylius ater* Scop., ♂ : Head, front view.
Fig. 441. — *Bombylius ater* Scop., ♂ : Head, dorsal view.
Fig. 442. — *Bombylius ater* Scop., ♂ : Head, in profile.
Fig. 443. — *Bombylius ater* Scop., ♀ : Head, dorsal view.
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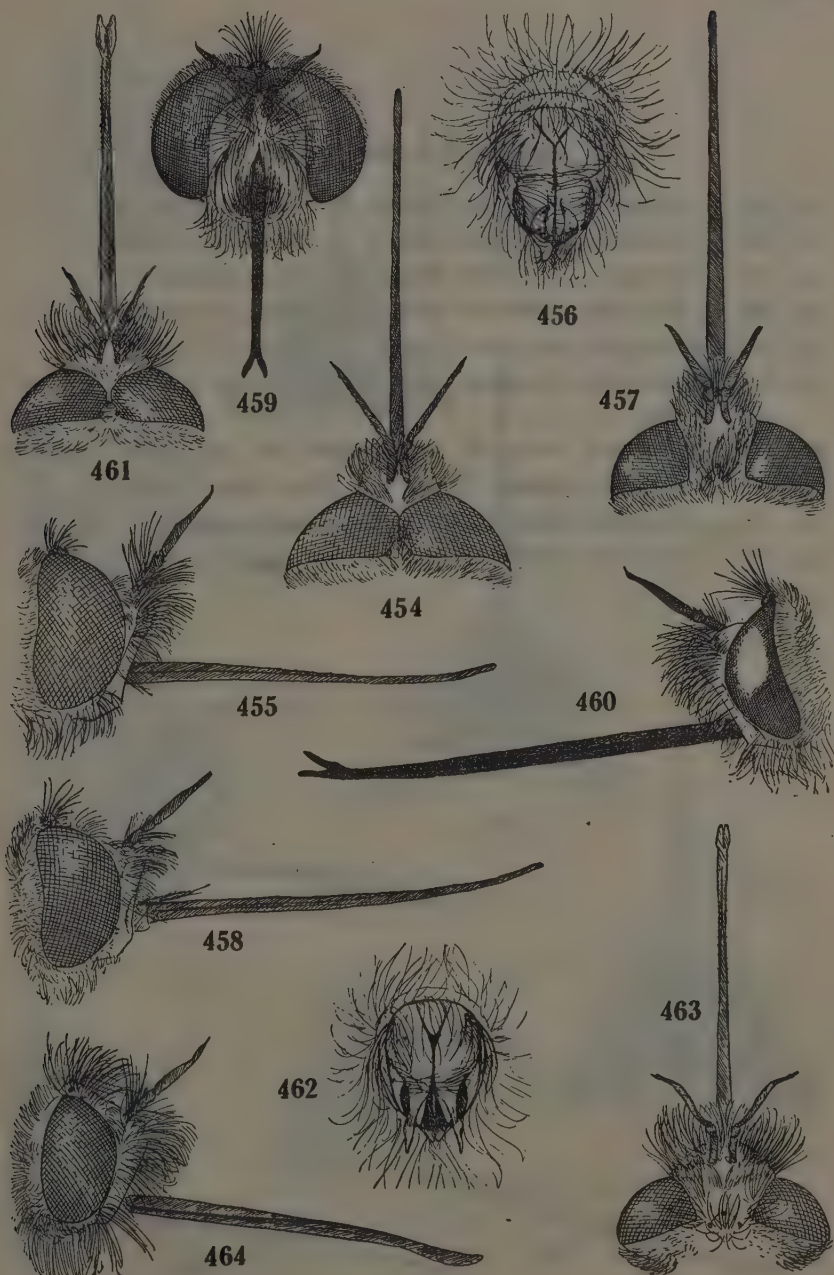
Explanation of Plate XXX

- Fig. 444. — *Bombylius bedouinus* nov. spec., ♂ : Head, dorsal view.
Fig. 445. — *Bombylius bedouinus* nov. spec., ♂ : Head, in profile.
Fig. 446. — *Bombylius bedouinus* nov. spec., ♂ : Hypopygium.
Fig. 447. — *Bombylius bedouinus* nov. spec., ♀ : Head, dorsal view.
Fig. 448. — *Bombylius bedouinus* nov. spec., ♀ : Head, in profile.
Fig. 449. — *Bombylius Catheriniensis* nov. spec., ♂ : Head, dorsal view.
Fig. 450. — *Bombylius Catheriniensis* nov. spec., ♂ : Head, in profile.
Fig. 451. — *Bombylius Catheriniensis* nov. spec., ♂ : Hypopygium.
Fig. 452. — *Bombylius Catheriniensis* nov. spec., ♀ : Head, dorsal view.
Fig. 453. — *Bombylius Catheriniensis* nov. spec., ♀ : Head, in profile.
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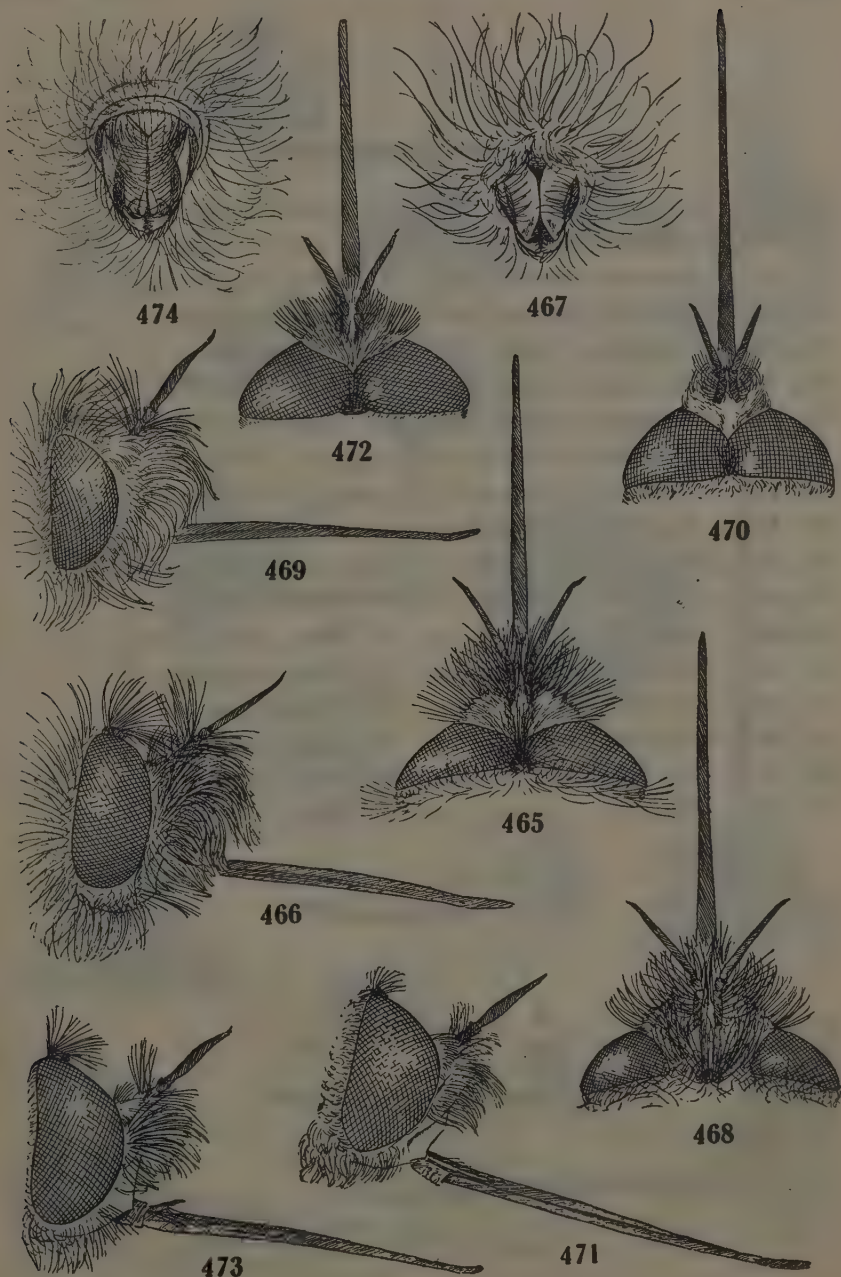
Explanation of Plate XXXI

- Fig. 454. — *Bombylius cinerarius* var. *elbayensis* nov. spec., ♂ : Head, dorsal view.
- Fig. 455. — *Bombylius cinerarius* var. *elbayensis* nov. spec., ♂ : Head, in profile.
- Fig. 456. — *Bombylius cinerarius* var. *elbayensis* nov. spec., ♂ : Hypopygium.
- Fig. 457. — *Bombylius cinerarius* var. *elbayensis* nov. spec., ♀ : Head, dorsal view.
- Fig. 458. — *Bombylius cinerarius* var. *elbayensis* nov. spec., ♀ : Head, in profile.
- Fig. 459. — *Bombylius cinerascens* Mikan, ♂ : Head, front view.
- Fig. 460. — *Bombylius cinerascens* Mikan, ♂ : Head, in profile.
- Fig. 461. — *Bombylius cinerascens* Mikan, ♂ : Head, dorsal view.
- Fig. 462. — *Bombylius cinerascens* Mikan, ♂ : Hypopygium.
- Fig. 463. — *Bombylius cinerascens* Mikan, ♀ : Head, dorsal view.
- Fig. 464. — *Bombylius cinerascens* Mikan, ♀ : Head, in profile.
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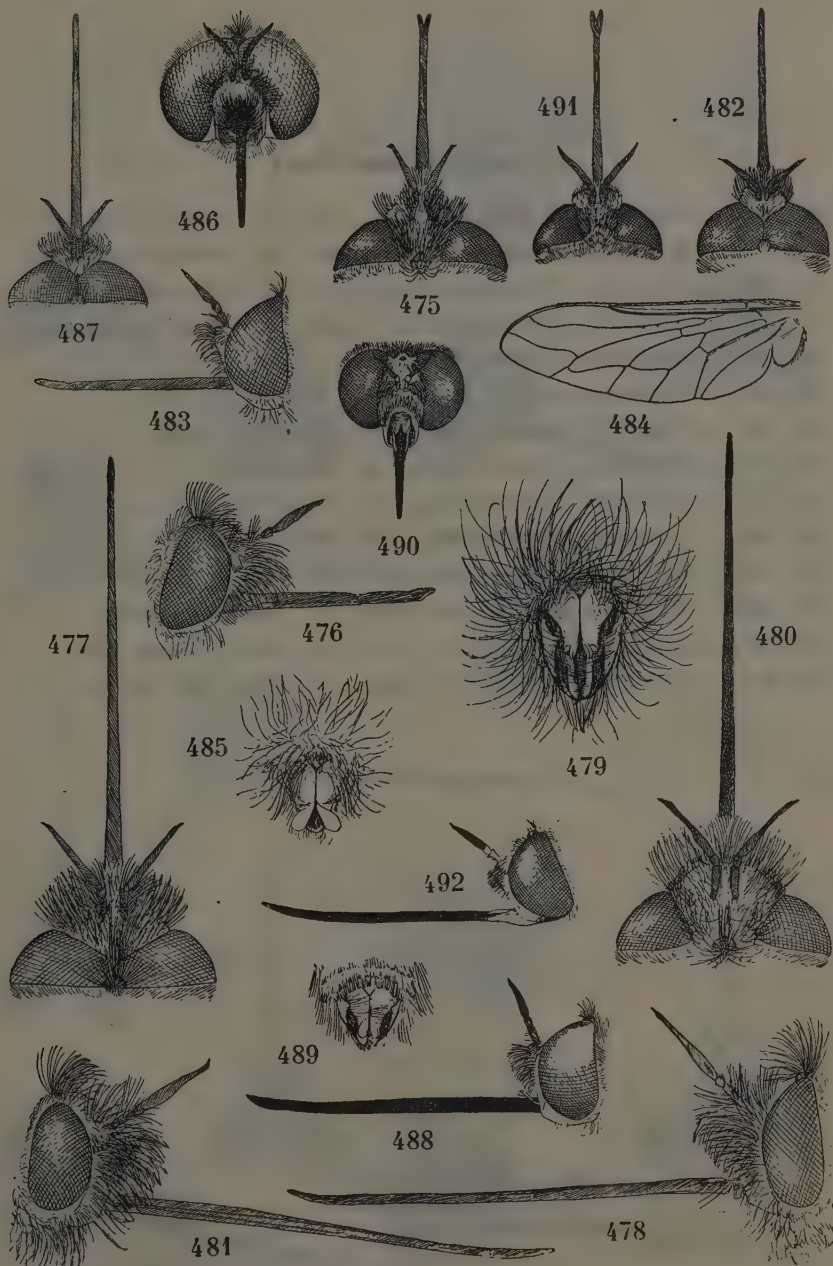
Explanation of Plate XXXII

- Fig. 465. — *Bombylius fimbriatus* Mikan, ♂ : Head, dorsal view.
Fig. 466. — *Bombylius fimbriatus* Mikan, ♂ : Head, in profile.
Fig. 467. — *Bombylius fimbriatus* Mikan, ♂ : Hypopygium.
Fig. 468. — *Bombylius fimbriatus* Mikan, ♀ : Head, dorsal view.
Fig. 469. — *Bombylius fimbriatus* Mikan, ♀ : Head, in profile.
Fig. 470. — *Bombylius cinerarius* var. *montana* nov., ♂ : Head, dorsal view.
Fig. 471. — *Bombylius cinerarius* var. *montana* nov., ♂ : Head, in profile.
Fig. 472. — *Bombylius flavipes* Wied., ♂ : Head, dorsal view.
Fig. 473. — *Bombylius flavipes* Wied., ♂ : Head, in profile.
Fig. 474. — *Bombylius flavipes* Wied., ♂ : Hypopygium.
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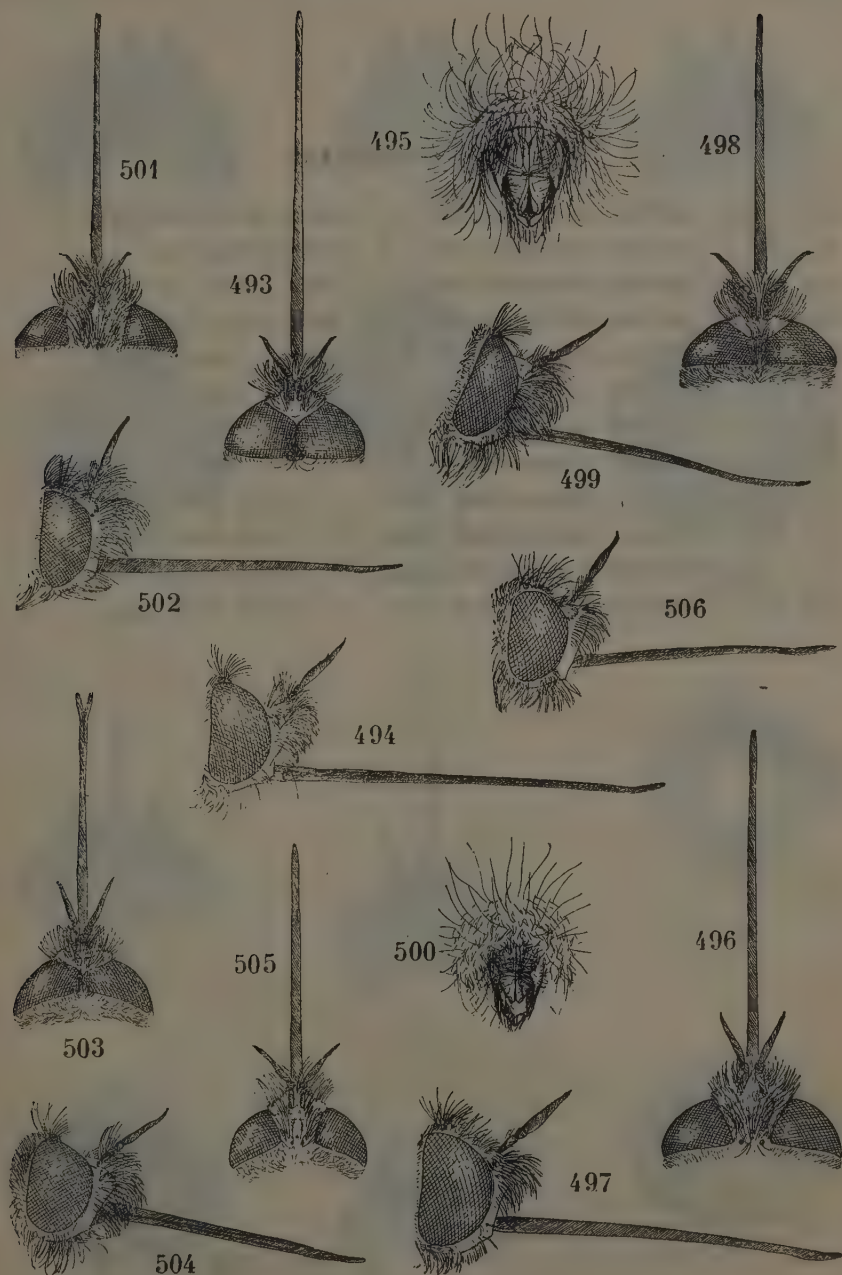
Explanation of Plate XXXIII

- Fig. 475. — *Bombylius flavipes* Wied., ♀ : Head, dorsal view.
Fig. 476. — *Bombylius flavipes* Wied., ♀ : Head, in profile.
Fig. 477. — *Bombylius medius* Fabr., ♂ : Head, dorsal view.
Fig. 478. — *Bombylius medius* Fabr., ♂ : Head, in profile.
Fig. 479. — *Bombylius medius* Fabr., ♂ : Hypopygium.
Fig. 480. — *Bombylius medius* Fabr., ♀ : Head, dorsal view.
Fig. 481. — *Bombylius medius* Fabr., ♀ : Head, in profile.
Fig. 482. — *Bombylius minusculus* nov. spec., ♂ : Head, dorsal view.
Fig. 483. — *Bombylius minusculus* nov. spec., ♂ : Head, in profile.
Fig. 484. — *Bombylius minusculus* nov. spec., ♂ : Wing.
Fig. 485. — *Bombylius minusculus* nov. spec., ♂ : Hypopygium.
Fig. 486. — *Bombylius modestus* Lw., ♂ : Head, front view.
Fig. 487. — *Bombylius modestus* Lw., ♂ : Head, dorsal view.
Fig. 488. — *Bombylius modestus* Lw., ♂ : Head, in profile.
Fig. 489. — *Bombylius modestus* Lw., ♂ : Hypopygium.
Fig. 490. — *Bombylius modestus* Lw., ♀ : Head, front view.
Fig. 491. — *Bombylius modestus* Lw., ♀ : Head, dorsal view.
Fig. 492. — *Bombylius modestus* Lw., ♀ : Head, in profile.
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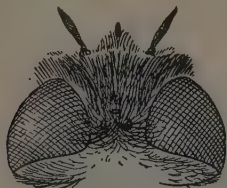
Explanation of Plate XXXIV

- Fig. 493. — *Bombylius Moussayensis* nov. spec., ♂ : Head, dorsal view.
Fig. 494. — *Bombylius Moussayensis* nov. spec., ♂ : Head, in profile.
Fig. 495. — *Bombylius Moussayensis* nov. spec., ♂ : Hypopygium.
Fig. 496. — *Bombylius Moussayensis* nov. spec., ♀ : Head, dorsal view.
Fig. 497. — *Bombylius Moussayensis* nov. spec., ♀ : Head, in profile.
Fig. 498. — *Bombylius numida* Macq., ♂ : Head, dorsal view.
Fig. 499. — *Bombylius numida* Macq., ♂ : Head, in profile.
Fig. 500. — *Bombylius numida* Macq., ♂ : Hypopygium.
Fig. 501. — *Bombylius numida* Macq., ♀ : Head, dorsal view.
Fig. 502. — *Bombylius numida* Macq., ♀ : Head, in profile.
Fig. 503. — *Bombylius wadensis* nov. spec., ♂ : Head, dorsal view.
Fig. 504. — *Bombylius wadensis* nov. spec., ♂ : Head, in profile.
Fig. 505. — *Bombylius wadensis* nov. spec., ♀ : Head, dorsal view.
Fig. 506. — *Bombylius wadensis* nov. spec., ♀ : Head, in profile.
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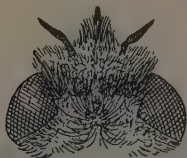


Explanation of Plate XXXV

- Fig. 507. — *Cytherea albolineata* Bez., ♂ : Head, dorsal view.
Fig. 508. — *Cytherea albolineata* Bez., ♂ : Head, front view.
Fig. 509. — *Cytherea albolineata* Bez., ♀ : Head, dorsal view.
Fig. 510. — *Cytherea albolineata* Bez., ♀ : Head, front view.
Fig. 511. — *Cytherea alexandrina* Beck., ♂ : Head, dorsal view.
Fig. 512. — *Cytherea alexandrina* Beck., ♂ : Head, front view.
Fig. 513. — *Cytherea alexandrina* Beck., ♀ : Head, dorsal view.
Fig. 514. — *Cytherea alexandrina* Beck., ♀ : Head, front view.
Fig. 515. — *Cytherea argyrocephala* Macq., ♂ : Head, dorsal view.
Fig. 516. — *Cytherea argyrocephala* Macq., ♂ : Head, front view.
Fig. 517. — *Cytherea argyrocephala* Macq., ♀ : Head, dorsal view.
Fig. 518. — *Cytherea argyrocephala* Macq., ♀ : Head, front view.
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507



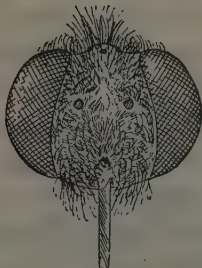
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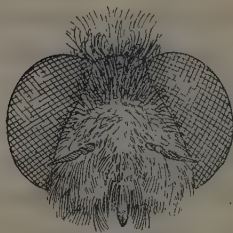
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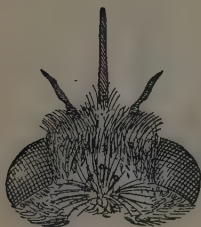
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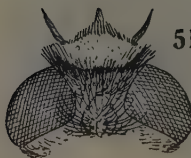
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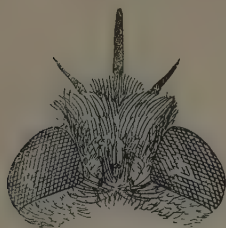
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Explanation of Plate XXXVI

- Fig. 519. — *Cytherea aurea* Fabr., ♂ : Head, dorsal view.
Fig. 520. — *Cytherea aurea* Fabr., ♂ : Head, front view.
Fig. 521. — *Cytherea aurea* Fabr., ♀ : Head, dorsal view.
Fig. 522. — *Cytherea aurea* Fabr., ♀ : Head, front view.
Fig. 523. — *Cytherea barbara* Sack, ♂ : Head, dorsal view.
Fig. 524. — *Cytherea barbara* Sack, ♂ : Head, front view.
Fig. 525. — *Cytherea barbara* Sack, ♀ : Head, dorsal view.
Fig. 526. — *Cytherea barbara* Sack, ♀ : Head, front view.
Fig. 527. — *Cytherea maroccana* Sack, ♂ : Head, dorsal view.
Fig. 528. — *Cytherea maroccana* Sack, ♂ : Head, front view.
Fig. 529. — *Cytherea maroccana* Sack, ♀ : Head, dorsal view.
Fig. 530. — *Cytherea maroccana* Sack, ♀ : Head, front view.
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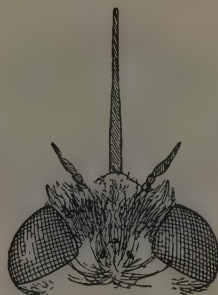
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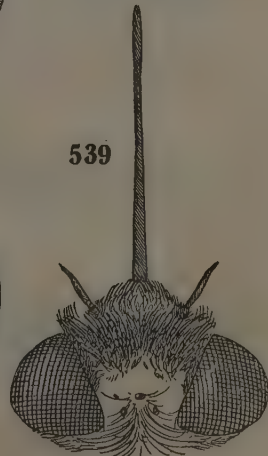
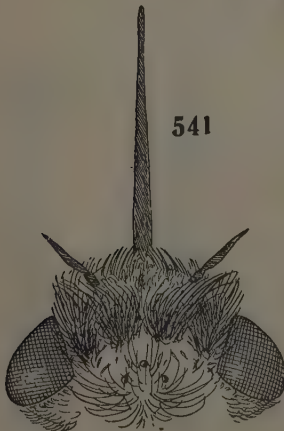
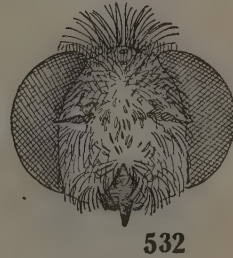
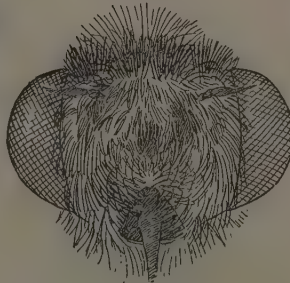
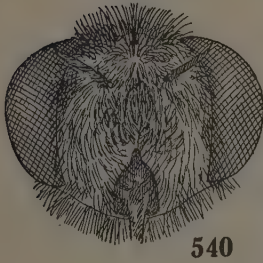
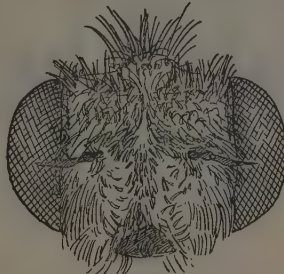
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530

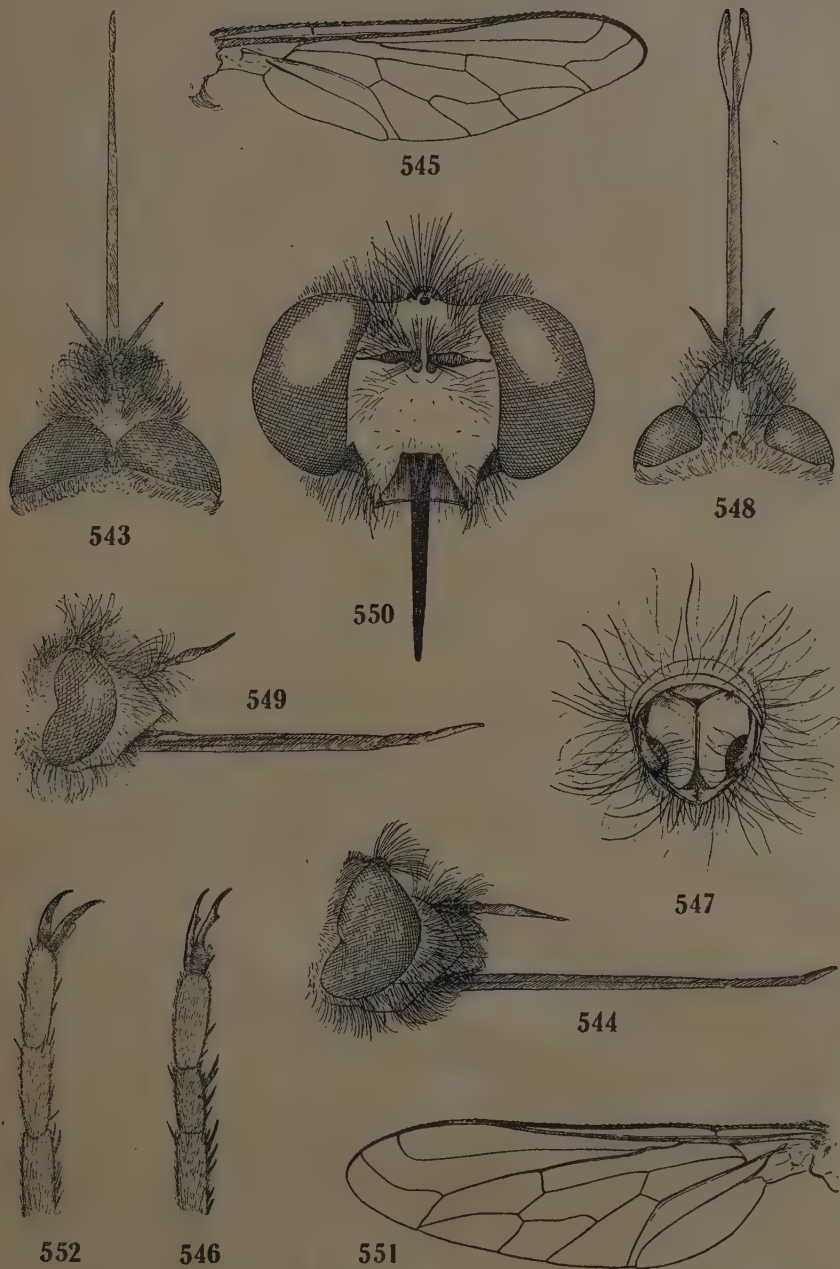
Explanation of Plate XXXVII

- Fig. 531. — *Cytherea nucleorum* Sack, ♂ : Head, dorsal view.
Fig. 532. — *Cytherea nucleorum* Sack, ♂ : Head, front view.
Fig. 533. — *Cytherea nucleorum* Sack, ♀ : Head, dorsal view.
Fig. 534. — *Cytherea nucleorum* Sack, ♀ : Head, front view.
Fig. 535. — *Cytherea thyridophora* Bez., ♂ : Head, dorsal view.
Fig. 536. — *Cytherea thyridophora* Bez., ♂ : Head, front view.
Fig. 537. — *Cytherea thyridophora* Bez., ♀ : Head, dorsal view.
Fig. 538. — *Cytherea thyridophora* Bez., ♀ : Head, front view.
Fig. 539. — *Cytherea wadensis* nov. spec., ♂ : Head, dorsal view.
Fig. 540. — *Cytherea wadensis* nov. spec., ♂ : Head, front view.
Fig. 541. — *Cytherea wadensis* nov. spec., ♀ : Head, dorsal view.
Fig. 542. — *Cytherea wadensis* nov. spec., ♀ : Head, front view.
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Explanation of Plate XXXVIII

- Fig. 543. — *Efflatounia aegyptiaca* Bez., ♂ : Head, dorsal view.
Fig. 544. — *Efflatounia aegyptiaca* Bez., ♂ : Head, in profile.
Fig. 545. — *Efflatounia aegyptiaca* Bez., ♂ : Wing.
Fig. 546. — *Efflatounia aegyptiaca* Bez., ♂ : Claws of right hind leg.
Fig. 547. — *Efflatounia aegyptiaca* Bez., ♂ : Hypopygium.
Fig. 548. — *Efflatounia aegyptiaca* Bez., ♀ : Head, dorsal view.
Fig. 549. — *Efflatounia aegyptiaca* Bez., ♀ : Head, in profile.
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Fig. 552. — *Efflatounia aegyptiaca* Bez., ♀ : Claws of right hind leg.
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